The Iron A

A Review of the Hardware, Iron and Metal Trades.

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A Practical Electro-Plating Plant,

We show in the accompanying illustration an excellent and economical arrangement of an

On the left is a dynamo-electric machine, which furnishes the currents for plating. This machine is run by a 1 inch belt from a neat counter-shaft manufactured for this especial purpose. The speed needed is about 800 revoutions per minute. The machine is connected drives straighter and penetrates hard wood to the rods running across the various tanks by heavy copper wires from two binding posts. One of the rods supports the anodes, or plates of metal to be deposited, and the other the work to be plated. The tank nearest the machine is that containing the nickel solution, as mon cut nails; that of chisel pointed, 25 cents it is at first sight, has never been entirely poptato fiers a greater resistance to the

current of electricity than either the silver or copper. The solution of cyanide of copper is used as an intermediate deposit upon iron or steel before the nickel, as it prevents the tendency to rust upon exposure, although the nickel may be deposited upon cast or wrought iron as upon steel direct, with excellent results if the articles be properly cleaned. The cyanide of copper is also used for depositing copper upon zinc, lead, etc., and arthurs made up of several metals before nickelplating. Silver and copper solutions, as well as those for brass-plating, are supplied by the manufacturers in ten gallon packages, as well as in barrels which hold some 40 gallons. Nickel is prepared both in the form of solu-tion and salts. The iron vessels in front of the dynamo-electric machine are sonnected by iron pipes, and have steam coils; they are used for boiling potash, hot water and sawdust. A polishing lathe is shown in the rear of the nickel tank; it is supplied with the proper wheels for polishing the articles, both before and after plating. A resistance board is shown in the circuit to the silver solution. It enables the operator, by turning the key to the right or left, to adapt the power of the current to the amount of work to

An outfit which is often put up, and is very popular, consists of an 8 inch dynamo-electric macuine, 50 gallons of nickel solution, the requisite nickel

about \$300. Two cells of what is termed the nickel battery can be substituted for dynamo-electric machine, and reduce the cost of an outfit to about \$150. Such an outfit is capable of doing a very large amount of work. A sufficient copper deposit may be obtained in 5 or 10 minutes, and of nickel in half an hour, or on small brass articles in 10 or 15 minutes. For smaller quantities of work complete outfits may be obtained as low 28 \$50. A good deposit of nickel offers many advantages to the manufacturer and exporter of metal goods, machinery, &c., which are greatly appreciated. It is very successful in preventing oxidation, and, owing to its hardess, does not scratch like silver, nor does it tarnish from the gases of combustion, decomposition and the like, as silver is apt to. Hence, it can be used combinations where silver is not missible, as with hard rubber. After the first cost of an outfit the cost of nickel-plating scarcely adds anything to the cost of goods, owing to the present low prices of nickel material. For cutlery, agricultural implements light machinery, general hardware, tools, and especially articles for export, it must have an extended use. The operation is largely mechanical, its success, where the proper materials are used, depending mostly on the care used in properly cleaning the work for deposit We are indebted to Messrs. Condit, Hanson & Van Winkle, of Newark, N. J., for the draw-

ing and estimates. An Improvement in Cut Nails.

Messrs, Morris, Wheeler & Co., No. 14 Cliff treet, New York, and 16th and Market streets, Philadelphia, are about to introduce upon the market a novelty in cut nails, which will at ace attract attention and excite interest in the trade. This is a nail with a chisel point, formed during the process of cutting by an ingenious improvement in the machinery, by which, while the nail is held firmly clamped, two knives cut down the shoulders of the point, giving it the chisel edge shown in our illustrations. The object of the chisel pointing is to enable the nail to penetrate the wood known, the square ended nail of the common Pattern enters the wood by breaking down the

are in no respect exaggerated. When the engine driver had confessed to his color-blind- tions; let us remember that there is another create matter, and it is equally impossible to wood, while the blunt nail beds itself in broken fibers as shown. The chisel nail has, therefore, risk of being indicted. a much firmer hold upon the wood than the blunt nail. The manufacturers claim that it re-

much easier than the blunt nail. ing nail with decided economy. The price of animation in Boston. The writer says: finishing nails is \$1 per keg over that of com-

quires double the power to draw it; also, it

chisel pointed nail is so driven that the line of its edge is parallel to the direction of the grain, it merely pushes the fibers aside; when the become as popular a defense to certain indictelectro-plating plant, in which economy of room and convenience of handling work are especially secured.

line of the edge is at right angles to the direction of the grain it cuts and then displaces. In either case it beds itself in solid on this side of the ocean. Not that American engineers are more honest, but that there is no

Metric System-The Other Side.

A correspondent of the Boston Medical and Surgical Journal writes, in opposition to the The special, value of this improved nail is project of adopting the French system, which found in the fact that it can be used as a finish- recently has been started with a good deal of

It is well know that this system, attractive as

and that French experimentations are not al- the same conditions as matter in these respects, ways attended with the most imposing results. and when effect is to be gained an equivalent of the new system, or its utter inconsonance with natural and pre-existing standards.

Perhaps enough has been said to show that there are objections to it, not only practical, ford found that in boring cannon by horsebut scientific and mathematical.

Importance of Studying Natural Philosophy.

Alexander Smith read a paper on the need of is that a weight of 772 pounds falling through science in invention. We quote a paragraph: a space of 1 foot will generate sufficient heat to It has been far from an uncommon thing for raise the temperature of 1 pound of water 1° ingenious and clever men to waste their time Fahr. Gravity acts separately upon every par-

'great nation" which has a similar weakness, destroy it. Power or force is exactly subject to We have no time to criticise the nomenclature power has to be exerted, or, in plain words, the work done by any machine is the same as the work applied. The discovery that power is in-destructible is one of recent date. Count Rumpower sufficient heat was given off to boil water; heat, in fact, is nothing more than another form for motion, and whenever you exert power heat is generated. Dr. Joule brought this discovery to a practical basis, for he deter-At a late engineers' meeting in England, Mr. | mined the mechanical equivalent of heat, which

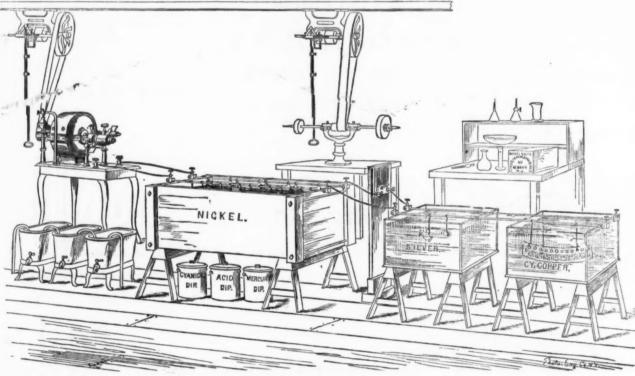
> ticle of matter, and consequently equally upon all bodies, so that a weight of lead and a feather, if dropped from any hight, would reach the earth together if it were not for the resistance of the atmosphere. I have known the peculiar properties of water or other liquids often puzzle even mining engineers, who could not understand how they communicated pressure. Any bulk of water presses equally downward, upward and sideways, according to the head which is connected with it. and this equivalent to 433 pounds per square inch for every foot in depth. I will not trouble you further, but if my remarks induce young members to study the important laws and conditions of nature I shall be extremely gratified.

The French shore of the Mediterranean divides into two distinct parts, which offer a strange contrast to each other. From Genoa to Marseilles all is life and beauty-"all the world" goes thither for pleasure or health. From Marsilles to the coast of Spain, one finds even, where solitude and desola-tion. The latter segion was at one time highly prosperous, but it naw been aptirely changed by the immense quantities of sand and mud brought down by the rivers. Narbonne, in the time of the Romans, communicated directly with the sea. It had its lagoou, like Venice, and a deep canal afforded passage to heavy merchant ships and tiremes of the imperial fleet. The lagoon is now blocked up, and the commerce, wealth

Alexandria, and was so rich and powerful that a poet of the fourth century spoke of it as the "Rome of the Gauls." The Rhone, with its annual 17,000,000 cubic meters of sediment, has been its ruin. So with other cities; but while they have become separated from the sea, agriculture is gradually taking possession of the land won from the water, and the vine and olive may yet restore a part of the ancient prosperity.

The Folytechnic Review has hunted up the following in regard to "periodicity" of severe winters, which is of considerable interest at the present time, though we must confess it is not very encouraging. A memoir by Rensu, the distinguished French meteorologist, upon the periodicity of severe winters, although published many years ago, has recently been quoted in defense of the opinion that such periodicity actually exists. According to Renau, rigorous winters return about every forty-one years. They are arranged in groups, generally composed of a central winter, and four or five others disposed on either side of it, within a space of twenty years. Mixed with these years are others also of unusual warmth, in such a manner that the mean cold of the season is not sensibly altered. The period of forty-one years seems to be that which corresponds to the maxima of the solar spots at the same season of the year. A central cold winter arrives eighteen months after the maximum of spots has coincided with the warmest season of the year. The severe winters seem to alternate between the northern and southern hemispheres

The British Admiralty has been made the victim of an extraordinary boax. A fictitious telegram was sent about six weeks ago to the port admiral at Cork, ordering the gunboat Goshawk to proceed at once to Gibraltar. The terms in which this telegram was couched was such as to leave no doubt of its being genuine; the number of the crew and the amount of coal upset 10 years of the former. The two together are valuable, and is the happy medium we want. In the instances I have related, had those interested known and kept in mind the fact that under no circumstances whatever is it possible to create power or force, they would have saved themselves much trouble. I would urge, upon young members especially, to closely study satural philosophy, and to keep in mind the following facts: It is impossible to were duly detailed, and in less than 24 hours



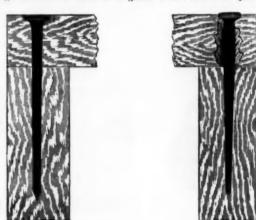
ARRANGEMENT OF AN ELECTRO-PLATING PLANT

anodes, or plates, and 20 gallons of cyanide of copper solution. Such an outfit costs the smallest moldings, and can be drawn at the extreme edge of a board. Another advantage is that it beds itself so firmly that no space remains into which water can penetrate to rot the districts. wood or rust the nail. For car work and all outside construction, such as clapboarding, shingling and fencing, the saving in metal reand quartering. If you wish to divide a string,
sulting from the champering of the corners an apple, or a bar of soap, it is very easy to cut
ever knew attempted was a man trying to lift

and currency are still in common use in France, natural philosophy would have entirely preespecially among the masses and in the rural

The reason is that the natural method of subdivision is not by decimating, but by halving knowledge men often strive to attain ends which gives a larger number of nalls to a given it into halves or quarters or eighths or six- himself in two milk cans with the yoke over

vented. We have read of the search for the philosopher's stone, and later on of perpetual motion. In these days of advanced scientific



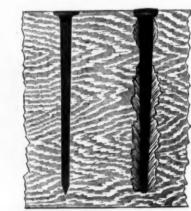


DIAGRAM SHOWING THE EFFECT OF NAILS UPON THE STRUCTURE OF WOOD.

appreciable economy attending their use.

There have been so many accidents on the English railways of late that certain kind-French theory of color-blindness as a probable explanation of an engine driver's neglecting to heed a danger signal. A medical expert, Haynes Walton, strengthens the theory by reciting this incident : " A few years ago I was investigating color appreciation, and the first instance of the acquired defect that came to my knowledge was in the person of an engine driver. The man confessed, after an accident two-2 and 5. It is evident that calculation through not distinguishing the red signal, that he had gradually lost his color power, which by simply displacing the fibers. As is well had been perfect." A manager of the company assured the expert that the driver had been carefuliy examined only a few years before, thers which oppose its passage when driven in and passed as having perfect sight. The Pall America. It has stood the test of 2000 years. right angles to the grain. The difference is Mall Gazette sagely remarks that the evidence It is an old friend. Let us spare it. well shown in the accompanying cuts, which would have been less open to suspicion if the

weight, and as fewer are needed for a given | teenths by the eye with a good degree of ac- | his shoulders. He managed very well till the ing and weighing. Now tradesmen, grocers, hearted London editors have revived the present system, confused as it is, is in conformity with this natural method of subdivision, hence its popularity and convenience.

> This defect of the decimal system has always been felt, even in arithmetical notation. Hence a duodecimal system of notation has often been decimal one now in use. The number 12 has would be facilitated by such a notation.

Our present system of weights and measures knows, on the Roman as and its twelve uncia. It is universally known both in Europe and themselves much trouble.

We know the national fondness for innova

amount of work, the manufacturers claim an curacy; to divide it into thirds, fifths, or tenths bottoms came out of the cans, and the cylindriis extremely difficult, and requires nice measur- cal portions flew up his legs. Unfortunately for themselves, a large portion of those engaged apothecaries and the like always divide first by in engineering (mining, civil and mechanical) the eye, and then verify with the scales. Our and other scientific pursuits never begin low enough, i. e., with the study of natural philosophy; or they disregard it as being of no moment, or too elementary, while others are only practical men without theory, and, consequently, strangers to the facts. Practice can feel its way a considerable distance without theory, advocated by mathematicians in place of the but theory is of very little service without practice, as 10 minutes of the latter will sometimes four factors-2, 3, 4 and 6; while 10 has only upset 10 years of the former. The two together are valuable, and is the happy medium we want. is a duodecimal system based, as all the world under no circumstances whatever is it possible

in mind the following facts: It is impossible to

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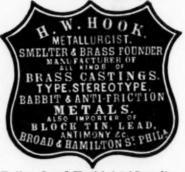
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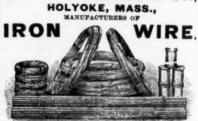
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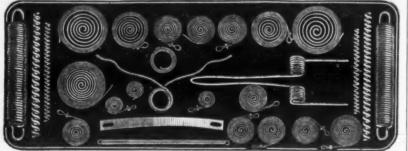
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The process and this connection with the blast pine; the vessel may be a wooden kee, barrel or larger cask or tank, properly lined, from two gallons for a single forge fire up to 500 gallons and over, according to the blast in use. The cost of the exygen is conditioned by:

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The process has been in a process. item compared to the gains from it. Although this process has been in practical use for over a year the inventor felt reluctant to offer it to the public before having its utility and practicability fully established, beyond any and all contingencies, not from a theoretical standpoint, but from the restimenty of mufacturers who have used the process this last year, and whose standing and reputation as mufacturers are of the highest order, and such as to entitle them to the consideration of others, further information, and for small specimens of castings from this process, address

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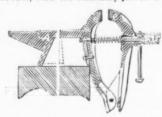
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New Patents.

We take the following shatract of new patents, recently issued, from the official record : COMBINED ANVIL AND VISE.

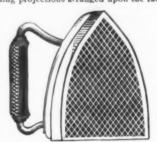
To W. E. Canedy, Rochester, N. Y .- Nov. 21. The combination of an anvi!, having side guide rails, with the stationary jaw of a vise,



said jaw having a projecting shoulder bearing on the top part of the anvil, and being attached by one or more fastening screw bolts.

SAD IRON. To Michael Mahony, Troy, N. Y .- Nov. 28. A sad iron having its smoothing face formed into indentations and projections, arranged after certain configurations, so that the pressure applied upon the sad iron will be received upon said projections.

2. In a flat iron, the indentations or corres-

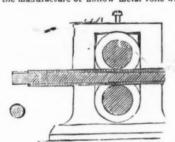


sad iron so that the smooth projecting surfaces will form triangles or polygons, with their diameters parallel or perpendicular to the center line of the sad Iron

A flat iron having an indented surface, with the edge of each projection or indentation rounded off or buffed, to produce, while being used, a perfectly smooth and polished surface.

MANUFACTURE OF METAL BOLLS. To T. Whitehouse, Boston, Mass .- Dec. 12 .-

In the manufacture of hollow metal rolls with



an internal rib or spline, the improved method of casting the hollow blank from which the roll is to be made with an internal rib or spline, and thee compressing and shaping it on a mandrel adapted to receive it and its rib or

The following trade marks were recently registered in the United States Patent Office : 4138 .- Axes, Hatchets and Hoes .- William C. Kelley, Louisville, Ky .- Nov. 21.

"The word-symbol 'Granger." 4144 .- Steel and Iron and Manufactures There of .- The firm of Fried. Krupp, Essen, Ger-

many .- Nov. 21. "A symbol composed of three rings sym-

nection with one another." 4190 .- Cutlery .- Theile and Quack, Elberfield,

Germany.-Dec. 5. "The letter 'A,' the numeral '1,' and a star arranged between the said numeral and letter.

4193 .- Steam Pumps .- Adam S. Cameron, New York, N. Y.-Dec. 12. "The word-symbol 'Special.'"

The following labels were recently registered 901 .- Title: " P. P. Bell's Method of Gold and

Silver-plating without a Battery."-B. F. Norris & Co., Chicago, Ill.—Nov. 21.
902.—Title: "P. P. Bell's Method of Gold and Silver-plating without a Battery."-B. F.

Norris & Co., Chicago, Ill.-Nov. 21. The following design, bearing date Nov. 28, was patented in the United States Patent

9660.—Hinges.—Joseph Leger, Providence, R. I., assignor to P. & F. Corbin, New Britain, Conn.

Term of patent 14 years.

Capt. Geo. E. Tyeon, of the Polaris Expedition, expresses his approval of Capt. Howgate's North Pole Colonization scheme. In a letter to Capt. Howgate, dated Jan. 13, he says: "I was up to the ears with snow. with you in the plan therein suggested as the ductor was beaten by four cars' lengths.

most practicable yet devised. It is a matter of no little surprise to me that there has not been more of an outpouring of American enthusiasm toward the achievement of the success of this great enterprise, and that, too, when we consider the magnitude and great importance of the work. It is unquestionably a 'noble' effort, and the scientific societies of the country would do well to unite in memorializing Congress relative thereto. Now is the time, and if this government falls this year, through a spirit of parsimonious economy to appropriate the means necessary to the furtherance of this project, England or Germany will, in all probability, secure the honor of this great achievement .

A Note on Files.

Prof. J. E. Sweet, of Cornell University mechanical school, in one of his recent lectures, gave his students the following note on files, as reported in the Polytechnic:

Each file should have a well fitted handle; and for a given purpose I know of nothing more utterly unsuited than the tangs or shanks of files as universally made. By remodeling the tangs of our entire lot of files, I hope, during the term, to show and convince you that there is a good form as well as a bad one; although ponding projections arranged upon the face of I feel sure that a quarter of a century at least will be required (our graduates holding prominent positions), before a general move can be made to change the wrong for the right. As they are now made, they are expensive to forge hand, and very difficult to forge by machinery. There is no tool by which a proper nole can be made in the handle; nor can there, while they are of all sizes and degrees of taper, be such a tool made. Beside, the tangs will not, even if put in in the best manner, stay in the handle as they should. There is no more sense or economy in changing a file handle every time one wants to change a file, than there would be in so changing a hammer handle; and if the tangs were of such form that when a handle was put on it would stay, workmen would no more think of shifting the one than changing the other. That the part of the tang next the file where the handle is protected by the ferule, should be tapering to give it strength, is all right; but that the part back of the ferule should be parallel, or nearly so, and of such size that it will drive tightly within a standard sized hole, is in my opinion the true form. The handle, to be used a long time without cramping the hand, should have a good deal of convex surface and very little, if any, of concave; and there should be no beads or orn aments. The wood from which they are mad. should be thoroughly seasoned, or the ferules threaded on as a nnt is wrewed upon a holt. Gas pipe threaded on the inside and cut into short lengths makes durable feruies. Files are cut their whole length, and to use only a small portion in the center sacrifices half their value. The best practice is to run their entire length at each stroke, running them at a steady uniform speed-not too fast; and to exert sufficient pressure to make them cut from end to end. If a file is run too fast, or allowed to slip over, it wears away the teeth; a pretty well worn tile will cut if held to the work with sufficient pressure; and for steel (unless the file is made specially for it, with obtuse teeth) it will endure more if used first on softer metal. The teeh of a new file are rapidly broken off, unless used with care.

> Blackwell's Island Bridge.-The plans for the construction of the bridge across the East River at Blackwell's Island are now in the hands of the consulting engineers, General J. D. Barnard, Q. A. Gilmore and Mr. Coanute, of the Eric Road, and a selection will probably have been made before the next meeting, which will be held on the 7th prox. A meeting of the board of directors was lately held under the presidency of Mr. William Steinway, and a communication was read from the consulting engineers asking for further time to examine the plans which had been submitted. This was at once granted, and the board adjourned until Feb. 7 at 3 o'clock. The meeting will be held at the office of the directors, over the German bank, corner of Fourteenth street and Fourth avenue.

The problem in Europe is to get food and employment for a superabundant population In the new world it is to obtain a population Australia is the latest bidder for an immigration of stout, honest, industrious people. She has sent \$50,000 to this city to be speut in obtaining emigrants, and a similar amount has gone to England. About half the passage money will be paid out of this fund, so that transportation will cost adults only about \$40 and children about \$20. About 1300 people, therefore, can be taken from this country, and the good ship N. Boynton, of 1800 tons capacity, will sail from the East River with the first lot on Feb. 1. It is doubtful whether a citizen of the United States will do better in the long run by going to Australia than by remaining here where, after the presidential question is settled, lahor is certain to be again in demand. Still, industrious men will do well in Australia, and the movement to get them there will be looked upon with interest by all those who appreciate the value to commerce by the growth of an American sentiment in the lands of the An-

An Eric Railway train that stopped at Bing hamton on January 13 had a figurehead stand ing in front, under the head-light, and covered The figurehead very agreeably surprised to see your letter, stepped down, and, walking back to the fourth published some time ago in the New York car, remarked to the conductor, "Didn't I tell papers, containing a proposition to Congress to you I'd get here ahead of you?" The young appropriate money, ship, and the necessary man had been put off the cars at Waverly for equipment for another expedition to endeavor not paying his fare, and had surreptitionally to reach the 'North Pole,' and I heartly concur climbed to his post on the engine. The conKron.

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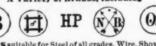
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1876. ANIMAL TRAPS

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The Ashtabula Bridge

Mr. Amasa Stone, late president of the Lake Shore Railroad, in his testimony before the Legislative Commssion on the 17th instant,

I was at first superintendent of the Lake Shore Road, between Cleveland and Erie, for two years; was then president from 1856 until 1875; have since then been a director of the road; the Ashtabula bridge was erected in the autumn of 1863; I designed the bridge; I only superintended the making of the plans; the detail of the iron work was done by Albert Congdon, supervised generally by Mr. Tomlinson have not the original plan of the structure : do not know where it is, but suppose it is in the ffice of Charles Collins, chief engineer of the road; there were all the specifications usually given for the construction of the bridge (bill of letais produced); full specifications were writ ten at the time; they were prepared by me, except some minor details : cannot tell where the original specifications are; have seen noth ing of them since the building of the bridge antil within a fortnight; this paper (paper pro luced) was copied from the order book of the Cleveland Rolling Mili Company; it was handed me by my brother; I made up the figures at the time in reference to the strain on the bridge am not aware where the paper is or whether i was preserved up to the time of the disaster the bridge was 15 feet between the bearings the width of the bridge, including chords from outside to outside, was 19 feet 6 inches, according to my recollection; the width was, inside of the chords, 14 feet, I think; the width of the truss was 2 feet 6 inches, and the hight 20 feet. There were 14 panels of 10 feet each. There was no change of plan after the work was proected by me. There was no departure, as the bridge was finally erected, from the size or strength of the bridge as planned by me, but there was an error by the constructors which gave a good deal of trouble until erected. A brace was put in horizontally when it should have been vertical. The original design was 4 by , to my recollection. When advised that the bridge was being put up slowly and did not come ogether right, I went down myself and found the braces were being put in wrongly. The change of righting the braces was made before the bridge was finished. The superintendence of onstruction was in the bands of Mr. Tomlin son, until I found him inefficient and discharged him; afterward it was in the hands of Mr. Rogers. I do not think he (Rogers) had ever put together an iron bridge before; do not know whether he has since or not He had had some years' experienc. building. The dropping of one or two counters would not effect the destruction of the bridge. My impression is that if half the counter braces were out it would not cause the bridge to drop. counter braces enable the bridge to stand a shock and stand the traction of a train going at full speed. They have little service to perform except to stand a shock. The dropping out of a single counter would not result in the destruction of the bridge under a weight of 300 tons above the dead weight. The lugs were put on more for convenience in raising than for any special purpose. After creeting the bridge

been a great deal safer without any lateral. A large photograph of the bridge was exhibited by Mr. Stone and examined by the mem bers of the committee. As to details of construction Mr. Stone continued : I have known bridges erected without any lateral braces between the tower chords and stand for years There were three 7 inch beams to each rail there were three stringers bolted and lapped together, and over these two stringers and bars connecting and spiked. 'It is usual to have the beams rest upon the top chord; it has always been done. The nature of the strain upon an upper chord is a thrust; the top chords were 4x7 inch beams, five of them T-shaped, a flange 1/ inch thick by 4, a 1/4 to 1 inch web. The web was thicker in the middle and lighter at the end. Those chords would stand a thrust stroke of 35,000 pounds to the inch. The dead weight of the bridge was something over 100 tons, according to my impression; but it must be remembered that there were two trusses, including rails and cross-ties. My impression is that the dead weight was a ton to the foot run. what two trains would strain it.

the braces were held by clamp bolts at intersec-tions that with friction I should think would be

sufficient to keep them in place. The tie rods

would elongate to the eighth of an inch, unless

they were too weak for the purpose. The

lateral bracing between the lower chords was

21/4 by 1/4 inch flat bar. I do not remember how

close together they were, but I think they came together throughout the length of the bridge,

intersecting each other. They were in every

panel, and braced every inch of the bridge The bridge was so very thick that it would have

It is very conclusive evidence to my mind that the bridge was carried down by the second locomotive in some way leaving the track. The bridge was not strong enough to carry a train derailed. Had the bridge broken from its own weakness I am convinced it would have fallen to the south. I am convinced that a model tested to the extent of breaking a truss would show that that truss would fall to the south and pull the bridge to the south. An engine dropping on the floor beams would tend to deflect them and pull the truss inward to the north, For sale by all HARDWARE JOBBERS, and when pulled to the north from the vertical of Boston.

to a small extent it would then go down. bridge fell to the north. I have constructed from 10 to 15 miles of Howe bridges; do not know of another Howe bridge anywhere with wrought iron braces; do not think it was negligence in again intrusting Mr. Rogers with the construction of the bridge, after finding that he had put the braces in wrong at first. There was no other particular in which be could make a mistake in following the original plan. sway rods were placed at every panel 11 feet apart; do not recollect the details as to how these rods were fastened. The chief braces and counters, as originally projected, were to be 4x7 inch T beams. There were five braces throughout the bridge in each panel and at the ends six; in the middle there were three mains and two counters, near the ends four mains and ne counter, at the ends six mains.

At the time the bridge was built I had not a dollar of interest in the mill where the iron was rolled; was not an owner of any until some time after I left the charge of the road, and then was only a small owner. Mr. Collins had general charge of examining this bridge; such a structure as that bridge, on such a road as the Lake Shore, if it had stood 11 years without showing any weakness, would not likely be examined every day. Common prudence would equire that the bridge should be thoroughly examined at least every three months, and by be trackmen quite frequently.

The cars might have taken fire from the loco notive or the heaters in each car. I examined ome patent stoves, and my conclusion was that they were more dangerous than the ones we were using. It is impossible to heat cars by steam from the locomotive. My opinion is that o stove could be provided which would extinguish its fire in case of accident; never heard of any difficulty with the bridge after the build-'s mistake of putting the braces flatwise instead of vertical, as provided in the plan, was remedied. Have never used the expression in regard to the Ashtabula bridge: "That's not my bridge." I never thought it, and I don't know why I should have said it, as I never shrink responsibility. A stone viaduct or arch would have been preferable, but at that time our funds were rather short. We were trying to build a perfect road, and thought we had a perfect bridge. Did not give my personal at tention to the bridge as it was going up. The iron work was done by as thorough a master machinist as I knew of, and when he worked at the plans I was at the shops frequently examining those parts as the machinists were at work; I was present at the raising of the bridge only three or four times; was present at the test before the trains were put upon it; when the test was made the bridge was stiffer and showed less deflection than I had expected; the difference in cost between an iron bridge and a stone arch there at that time would have been about \$15,000; the iron bridge itself cost about that sum; the total expense, including masonry, might possibly have been \$70,000.

The London papers record an extraordinary shooting feat performed recently by Cholmon deley Pennell. He land long odds that he could shoot consecutively 100 pennies tossed in the air. He selected some of the old Georgian coins, as being heavier than the modern bronze pieces, and less likely, therefore, to be caught by the wind. An old soldier threw each penny up three feet above his head, and as he threw Mr. Pennell fired with small shot, and hit every one of the 100 coins. He had about half a dozen over, and offered to bet any of the spec tators that he would hit those as well. they were more than satisfied, for Mr. Pennell had won £250 of them, making the money in a little more than an hour. The story is so curlous that it may be well to remember that the hero, beside being an inspector of fisheries. has been a contributor to Punch.

The great phosphate beds of South Carolina, and possibly a hundred other localities, are conjectured with reason to have originated thus: All fish that swim together in what are called schools die together in vast heaps, and in por-tions of the Atlantic well known and ascertained. The researches of African explorers have discovered an elephants' graveyard, where hundreds of tons of ivory strew the ground, but it is so far from the sea coast as to be almost lost to commerce. The dogs in Constantinople know when they are on the point of death, and repair to the barge which is main tained for the purpose of conveying defunct canines to the lonely island in the Bosphorus where the dog's potters' field is situated. In short, an eminent French savantargues that all animals, birds, fish and insects possess, in com mon with man, this graveyard system, and from this position he argues that animals reason.

The London News describes an American rail-The tracks were 7 feet apart. The center of each outside rail of each track was nearly over ter." "In each car," it adds, "is a huge stove, the center of a truss. A bridge to carry two very often quite open all the time. Its furnace tracks would have to be quite twice as strong is roaring loudly as 'the merry logs of Algidus as a bridge to carry one. I have carefully con- in the Roman winter evening, which Macaulay's sidered the matter, and my conclusion is that ballad describes. Sometimes there are two the dead weight of the bridge-even with two stoves, one at each end of the car. Near each trains upon it-would not strain any portion of stove is a vast deposit of logs, and whenever the iron more than 8000 or 9000 pounds to the the fire shows the slightest tendency to burn square inch, while it was capable of resisting a low, some passenger is heard to grumble, and strain of at least .0,000 pounds. One train the negro attendant heaps wood on until the would strain the bridge about 85 per cent. of stove roars and crackles again." We are sorry the editor of the News did not have time to visit

> The English sparrows have described Boston and gove West. A resident of Cambridge, who has had leisure to watch the birds, and has kept food for them on his premises ever since the first snow fell, observed a falling off of the attendance upon his daily collation last week, and on Sunday he had only one partaker of his bounty. He also noticed that large gatherings of the sparrows generally ended in a high flight and a disappearance of the flock in the West They were evidently disgusted with the climate

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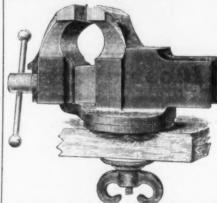
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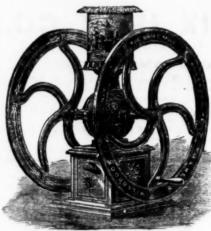
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Scientific and Technical Notes.

The Edinburgh Review, in a recent article on Railway Profits and Railway Losses," presents some curious facts with regard to the in-

WEIGHT OF ENGLISH ROLLING STOCK. which seems to have been going on as steadily in that country as here. In cases of collision it was found the old carriages suffered most. As trains became longer, therefore, and speed their task, owing to loss and breakage. Mr more rapid, it was necessary to make carriages larger and heavier; and experience has proved that increase of weight means decrease of tear. Of the carriages now used on the Metropolitan line, the first, second and third class carriages weigh respectively 15, 14:75, 14:25 tons, and seat 48, 64 and 80 passengers. The weight of the locomotive engine has also steadily advanced. In the Liverpool and Manchester competition of 1829, the Rocket, which won the prize, weighed 4 tons 5 cwt., and its tender 3 tons 4 cwt. Five years later the Atlas, a 6 wheeled engine on the same railway, weight, 11.4 tons in working order. At first, rails weighing 35 pounds to the yard were deemed adequate, but as these could not bear a 9 ton engine, they were replaced by new rails weighing 66 pounds per gard. In 1830, 7 ton engines vere deemed heavy; in 1849, 15 ton engines; in 1850, 25 ton engines; and in 1860, 35 ton en gines. Now there are good engines on the continent that weigh, exclusive of tenders, 45 tons, Mr. Meyer's 12 wheeled engine, exhibited at Vienna in 1873, weighed 60 tons. There was a weight of 10 tons to each pair of wheels, and the tractive force was estimated at 22,000 pounds, equal to the draught of 2300 tons, exclusive of engine, on a level; 340 tons on an incline of 1 in 40, or 155 tons on one of 1 to 17. At the speed of 880 feet per minute, the effect

f this engine corresponds to 587 horse-power. While we have not the facts at hand in regard to the following

NOVEL USE OF PAPER,

vet as a material for sheathing or use under water, paper is altogether admirable when a cement or water-proof substance is used. No material, perhaps, has been of late years subjected to so many new and novel uses as has paper. Articles formerly made of iron tin, wood and cloth have been supplanted, and in many instances have been marvelously well unterfeited by paper. It has just come to be applied to a still more notable use, that of a covering for the iron hulls of vessels. For a ong time it has been an interesting and apparently upsolvable problem as to how the submerged hulls of ships might be preserved from corrosion, and sea grasses and barnacles be prerented from gathering on them. Beside ruining the places, the latter increase frictional resistance and diminish the speed of the vessel. The Patent Office has been flooded with devices and preparations for this purpose, but all have proved more or less ineffectual. Nautical men and chemists have been engaged in searching anxiously for the remedy. A short time since a vessel was placed in the dry dock at Ports mouth, Engiand, for examination and repair. For some purpose several sheets of heavy sheathing paper were made to adhere to the bottom of the vessel, by means of a marine giue, before the vessel was launched from the dock. A voyage of some months duration followed, after which the vessel was again placed in the dock. Upon examination of the ship's bottom, it was found that every part of the hull below the water line was covered with weeds, grasses and barnacles, except the he made further experiments with success, and soon had a patent for papering ships' bottoms. the fullest limit of which has certainly not yet

been reached. A curious set of experiments made in France the greatest avarage

LOAD FOR A MAN

of great strength to carry a short distance. can carry an aggregate of 1518 nounds over to the effort and the velocity with which a man arms, it has been found by these experiments that, under the most favorable circumstances, raisea from 1.8 to 1.2 feet per second, or about one-eighth horse-power.

Last month there was a very interesting meetgineers, at which there was the usual extensive

DISPLAY OF TELEGRAPH INSTRUMENTS and other apparatus connected with telegraphy, but only one or two objects could be regarded as coming within the category of new inventhe Western and Brazilian Telegraph Company, some years past been associated with the operations of foreign telegraph companies. Cable sphere of ordinary observation, most people are

in recent years. The ordinary grapnel is furnished with rigid prongs, which, although perfectly well calculated to seize and bring a cable to the surface, are also liable to become fastened to rocks and other substances, and to all cable ships are compelled to carry a very large stock of grapuels on board, and have often to return to port without accomplishing Jamieson has furnished his grapnel with hinged prongs governed by a spring, which yields at a given strain, so that the moment a rock is 'hooked" the grapnel slides off and comes to the surface. It is, in fact, an octopus-like ma-chine, which puts forth its "feelers" in search of the real article, and draws them back the moment any counterfeit substance seeks to entangle them. This, with the new mariner's compass exhibited by Sir William Thomson, was perhaps the most interesting and valuable feature of the display made at the meeting. The Society of Telegraph Engineers, which now numbers upward of 800 members, was founded by Major Frank Bolton, the present vater examiner of London, and Major C. E. Webber, of the Royal Engineers

In an English patent numbered 1476, granted to J. G. Tongue, and dated April 6, 1876, we find the following particulars: This invention relates to a new or improved process of manufacturing imitation or artificial leather,

"TEXTILE LEATHER," and in the application thereof to various useful

purposes. The base or body of the composition constituting the new manufacture is com posed of cetton or cotton waste (according to the quality of textile leather to be produced), or of any other textile material which can be carded and used as cotton, also wool or any kind of animal hair which can be felted into sheets of wadding or carded felt uniform. The sheets are placed on a table of polished metal plates, having a false bottom, and heated by team; the sheets of wadding or felt are impregnated with animal glue or size, made of a oucentrated decoction of rabbitt, hare, cat or dog skins deprived of hair, waste of skins or green leather, guts and membranes of all kinds of animals, which have first been well cleansed and then cut into narrow strips. When the decoction is well clarified and of sufficient substance, and made hot, the coloring matter which is to be given to the leather is added, with a slight addition of glycerine, which varies according to the suppleness and elasticity required. The sheets of wadding or felt, after being well saturated with the decoction, rollers are passed over the surface in order to make the sheets of an uniform thickness, which are left until the watery part is completely evaporated. This improved textile leather can be used in place of natural leather, and may be employed in particular for covering tables, chairs, sofas, traveling bags, lining of hats, caskets, carriages, harness, military equipments, slippers, book binding, and many other uses to which it may be applicable.

Our readers will doubtless remember that on the 7th of last January skating was commenced on Mr. John Gamgee's first sheet of artificial ice, 430 square feet in extent. A thousand square feet—the size of the rink at Chelsea, which is still frozen-was the second attempt, and now

solid and transparent, may be seen and used at the floating swimming baths on the Thames, at papered portion. A cute officer of the Royal Charing Cross. The floating baths were handed Navy "had an idea;" he kept it to himself; over to Mr. Gamgee on the 20th of October last, and within two months two complete sets of machinery, with all the accessories necessary Is acknowledged by all who have used In this discovery the officer has reaped a rich for a rink, have been satisfactorily erected. The uses of which seem almost inexhaustible, and They consist of the circulation of a current of glycerine and water through a series of metal tubes immersed in water, which is converted into ice, and maintained in that condition. The developed some interesting facts in regard to details, however, are different. There are two ice machines with the necessary engines, one at each end of the structure. Each machine absorbs over 100,000 heat-units per hour, and it This was found to he 319 pounds; all a man is stated that this immense effect is obtained by can carry habitually, as for example, a soldier the expenditure of about six horse-power per his knapsack, walking on level ground, is 132 machine. The water of the Thames, at a tempounds-an extreme load, it would seem-or perature of about 40° or 42° Fah., pumped freely 3200 feet as a day's work, under like circum in the machine at a minimum of one atmosstances. If he ascend ladders or stairs as do phere and three-quarters, whereas the pressure hod carriers, then he can carry but 121 pounds in the refrigerator is only nominal, and correscontinuously, and his day's work cannot exceed ponds to the temperature of about 0' Fah. A 1232 pounds raised 3300 feet high. With regard rotary pump drives about 4000 gallons of glyc erine and water per hour through each recan produce by pulling or pushing with his frigerator, and this cold liquid traverses through the tubes of the rink, and water outside them is thoroughly frozen. The special difficulties and for continuous work, an effect cannot in maintaining ice at the Charing Cross baths be gained exceeding from 26.4 to 33 pounds arise from the great radiation from the iron structure, which is caused by its immersion in the waters of the Thames, and by the extensive area of glass roof covering the whole in, which ing of the English Society of Telegraphic Eu- greatly raises the temperature of the internal atmosphere. The desired result, however, has been attained, and ice two inches thick has been already formed and skated upon, in the first instance, by two ladies. The machines act as tions, and of these the most interesting appeared feet in length, and the glycerine, having passed to be a new form of cable grapnel, exhibited by through this, gravitates into the other machine and, having been conducted through the reand explained by Mr. A. Jamieson, who has for frigerator, passes back through the adjacent tube. In this way Mr. Gamgee secures what he terms his "direct alternative" circulation, lifting being an operation moved far beyond the which is the special improvement in the floating rink. Each machine is capable of controlling ignorant of the peculiar difficulties by which it the entire circuit of pipes, so that, in the event is surrounded. Of these, the breaking of grap- of one failing, the other insures the continuance nels is one of the most frequent and serious; of the process of freezing. It has been demonand Mr. Jamieson's invention, which is designed strated, in fact, during the process of making

is over a mile of flat wrought iron tubing. The freezing machines have been constructed by Messrs, Raoul, Pietet & Co., the patentees of liquid sulphurous acid. It is so arranged that when the bathing season again approaches, the break with the slightest strain of the ship. Of ice machinery and apparatus will be taken down such frequent occurrence is this, indeed, that and stowed away, to be replaced for active use after the summer season

The Anti-Clinker Grate Litigation.

The Troy Whig has the following interesting matter in regard to the famous anti-clinker grate controversy. We copy the article en-

Most of our readers are probably familiar with what is known as the modern anti clinker principle in the construction of stoves. As the manufacturing of stoves is one of the most important branches of our local industry, and as the question seems to enter into our local matters just now to a great extent, so far as this interest is concerned, a short description of the subject involved may prove futeresting to our readers. Upon the adoption of self-feeding stoves that are designed to run as understood. with a continuous fire, the debris beyond the deposit of ashes would accumulate upon the grate; the ashes would, to a large extent, pass through the erevices of the grate, but the clinker and slag would not. Shaking the grate removes the ashes, but the slag and clinker would remain to choke and interfere with the operations of the stove

James Spear, of Philadelphia, in 1870 designed a stove with a fire-pot grated at the lower edge, and with the grate hung below the fire cylinder, with an intervening space, and which space permitted the introduction of a poker to clean the grate from the accumulations of clinker and slag above named. He was the first, as we are told, and as seems to be generally understood, to do this and make his application of it valuable to the public by its inroduction and practical use. Another new feature in stove structure had its birth about the same time, and this was the invention of Elihu Smith, of Albany, a former Trojan, whereby a sur-base flue system was introduced. These two principles of construction as combined now enter into the arrangement of most of the parlor heating stoves, as they are termed, that are made. Like all great things, however, in the way of invention, there has been a dispute as to who made the invention: but a large mejority of the stove manufacturers of the United States have, after consultation, come to the conclusion that Spear was the first inventor of the anti-clinker principle, so called, and that Smith first applied and used the inclosed flue at the rear connected with a sur-base flue. A large majority of the stove manufacturers of the United States, feeling anxious to award to the honest inventors of these important features the tribute of discovery in stove structure, have formed an association and have purchased the Spear and Smith patent and paid the inventors liberally therefor.

They have done this after the best legal authority that could be had was consulted, and had examined the proofs as to priority of inven-We are pleased to learn that they do not propose to make an arrogant monopoly of the invention, but have concluded to license parties to make and sell the same at merely nominal terms. Somebody was really entitled to an award for this meritorious invention, which has added so much comfort and convenience to our means of keeping warm. This is as it should be. Monopolies are distasteful to the good sense of the community, and only breed trouble and dissatisfaction.

However, there are still parties who do not ecognize the claims of either Spear or Smith. One of these (and we have not learned of any others) are Perry & Co., of Albany, and this firm were yesterday sued by the owners of the Spear patent. A bill was filed, as we understand, day before yesterday in this district, claiming one hundred thousand dollars damages for their infringement of the Spear claim. Having satisfied themselves of the rights of Mr. Spear in relation to these inventions they seem determined to invoke the strong arm of the law to enforce them. We understand that all the stove concerns in Troy acquiesce in their decision, and the truth and value of the Spear and Smith claims. We shall endeavor to keep the trade posted as to the proceedings in the above matter, and we hope that the litigation which seems so strongly featured and shadowed by these proceedings against the infringers may result in a proper award by judicial investigation to Smith and Spear, wh it seems in the matter are entitled to be called the "original Jacobs."

The association who have bought the Smith and Spear patents have employed our townsman, Esek Cowen, Esq., of the firm of Smith, Fursman & Cowen, in connection with E. Dickerson, Esq., of the firm of Dickerson & Beaman, of New York, as counsel to represent them in the coming controversy,

Take Notice!

We are indebted to our friend Mr. Clement Olhaber, of Cincinnata, for a copy of a notice which he assures us was posted by the roadside in Campbell county, Ky. Mr. Olhaber is twins. One supplies each alternate tube of 115 an inveterate wag, but as he shows us the hole in the paper made by the carpet tack which fastened it to the feuce post, there can, of course, be no question as to the genumeness of the document:

NOTTIS NOTTIS.

Know kow is allowed in these medders, enymen or women letten than kows run the rode, wot gits inter my medders aforesed shall have his tale cut orf by me
OBADIAH ROGERS. OBADIAH ROGERS.

The little talking machine which was on exhibition in New York a few years ago is now sputtering in Paris. An English paper, Iron, suggests a method of utilizing it. It says that the instrument would be invaluable at railway

USE THE BEST.



Pawtucket, R. I.

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Goods of all known manufacturers have been repeatedly tested, and interesting tables have been compiled showing the working qualities of hies made by different makers, and of files made from different steels, and with various shapes and angles of tooth. They have thus rejuced the manufacture of files to an exactness and perfection with a uniformity of result, as they believe, never before attained No file, foreign or domestic, that they have ever tested, has equalled the performances of their own goods taken at tandom from their stock. Their machines are capable of the most delicate adjustment, and can produce the very finest work known to the trade. Special files made to order. Prominent file manufacturers are having their best goods from our works. Price lists and information furnished on application.

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McCaffrey's Standard American Hand Cut Files and Rasps are warranted to do more work than any other files and rasps in the market.



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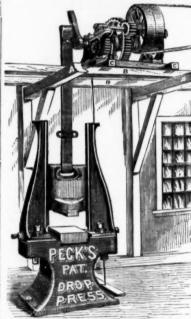


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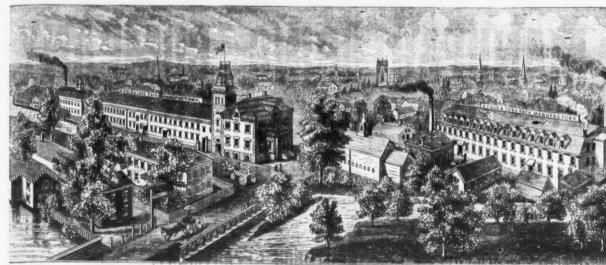
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SUPERIOR SWEDES IRON TACKS. for Upholsterers' Use, Saddlers' Supply, Card Clothing, etc., etc.

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Fine Two Penny & Three Penny Nails, Channel, Cigar Box & Chair Nails, Leathered Carpet Tacks, Glaziers' Points, Etc. OFFICES AND FACTORIES AT TAUNTON, MASS. WAREHOUSE AT 78 CHAMBERS STREET, N. Y., where may be found a full assortment of Tacks, Brads, &c., for the accommodation of the New York Wholesale and Jobbing Trade.

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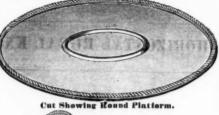
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Chisels, Gouges and Drawing Knives of all kinds, Screw Drivers, Screw Driver Bits, Cook's and Douglass Mfg. Co.'s Augers & Bits, Wood and Metal Head Gimlets, Improved Hollow Augers, Blake's Patent Extension Bits, Boring Machines, Chisel Handles, Wood Boxes, Tool Chests.





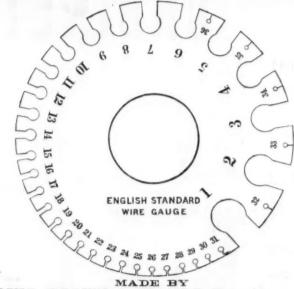
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Ansonia Brass & Copper Co. Office, 19 & 21 Cliff Street, NEW YORK.

Ansonia Corrugated Stove Platform the Ausonia Corrugated Stove Platform, the its heavy flaured ogce border, is believed be the best. Platform offered to the trade, shown in the illustrated section herewith it quires no nailing to keep it in place or to event it from turning up at the edge; while metal is of sufficient thickness to require clining.

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Rolling Wood Shutters English Standard Wire Gauges



DARLING, BROWN & SHARPE, Providence, R. I.

INDUSTRIAL ITEMS.

MASSACHUSETTS.

The nail factories in East Weymouth, in which business has been suspended during the summer, owing to the inadequate supply of water, ave now resumed operations on full time.

Fifteen thousand rifles were manufactured at the Springfield Arsenal last year.

The John Russell Cutlery Company, of Turers Falls, find their experiment of making oocket knives very successful, having already urned out 50,000 dozen, and being unable to all their orders without enlarging that departneut of their works, which they are likely soon

Owing to the general duliness of business, he Haydenville brass shops are running on hort time, and the help have been cut-down.

The committee of Connecticut capitalists, caded by Gov. Jewell, who recently visited the Florence Sewing Machine Works, by request f the stockholders, have reported a plan for organizing the company, which reduces its apital, nominally \$500,000, to \$250,000, and the value of the present shares 90 per cent., so that the stockholders will own \$50,000 of the new stock, leaving the remainder to be made up by new subscriptions. The local paper claims that Mr. W. B. Hale will retire from the management of the company, in favor of S. L. Clark, of Hartford, and lately of the Weed Machine Company's Works.

The stockholders who own the buildings ormerly occupied by the Sheffield Steel and Iron Works, Northampton, have voted to lease and seil their buildings, upon certain condiions, to S. R. Hinkley, who stands ready to start the foundries at once.

CONNECTICUT.

The Wheeler & Wilson Factory resumed work on Monday, the 22d inst.

The Union Metallic Cartridge Company, of Bridgeport, are fitting up the tap and die shop, West Stratford, for the extension of their business.

Seven hundred men and 400 girls are employed in the Winchester Armory. Work is prosecuted 23 hours out of 24, two sets of hands being employed. Thirty million cartridges have been manufactured during the past three months, and as many more will be made during the next three.

The New England Pin Company, of Winsted, have recently bought out a small pin factory at Cohoes, N. Y., and another in Canada, transferring their machinery to Winsted, and increasing its own capacity to 108 machines, capable of turning out 38,880,000 pins per week.

The Union Nut Company, of Unionville, were obliged to obtain a steam engine, the scarcity of water preventing them from keeping up with their orders.

The Southampton Cutlery Company did a good business all through last year, declaring quarterly dividends and increasing the company's surplus to an amount equal to the divi

A meeting of the creditors of the Birmingham Shovel Company will be held in New Haven on January 22.

The Strong Manufacturing Company, of Winsted, have put in a 24 horse-power engine, and is working steadily.

Briggs' Waterbury Screw Capping Company s to be removed to Ansonia and enlarged, and the Osborne & Cheeseman Company, of Ansonia, are to add to their business the manufacture of brass and copper tubing for chande lers, etc.

It is rumored that steam street cars are to be placed on the Troy and Cohoes Railroad. The Albany and West Troy Street Railroad Company are also discussing the project of substituting steam for horse-power, and have ordered a specimen car from Gilbert, Bush & Co. to run between West Troy and Albany.

Some of the mills at North Adams are run ning on half time, because of the low water, and others are obliged to rely almost wholly

upon steam power.

The statement of the Troy Co-operative Foundry Company, for the year ending January 1, shows an undivided surplus of \$21,383.92. Work was suspended at the Bessemer Steel Works, at Troy, on the 19th, on account of the breaking of the bed plate of the engine. Work was resumed on Monday, the 20th inst.

NEW JERSEY.

Only three pits out of 15 are now running in the Warren Foundry, Phillipsburg. This large concern has a capacity of smelting 100 tons of pig iron per day

It is reported that all the property and machinery of the Marion Watch Company will be sold at auction for the bondholders. There appears to be little or no probability of the the quartz and separating the metals from all workmen ever receiving anything of the \$15,000 due them for wages.

PENNSYLVANIA.

Messrs. P. L. Kimberly and F. H. Buhl, representing two of the best and most successful iron mills in Pennsylvania, viz.: Kimberly, Carnes & Co., and Westerman Iron Company. both of Sharon, started on Saturday, the 13th inst., on a business trip to New Orleans. They are looking after a large contract, soon to be ing was made on the morning of the 18th. let by the American Cotton Tie Company, for

engaged to work three or four months at the Harrisburg Foundry and Machine Works, in Reading Railroad Company. making iron oil tanks.

The Pottstown Car Works will be in full operation again in a short time.

The rolling mills at Catasauqua and Fern Dale are not pressed with orders, and could shop. do three times their present work.

blowing engine will be placed at the Reading March, but only to use up stock on hand, unless Pipe Works, of Mellert & Co., has been re-times get better. It is a cold-blast charcoal ceived from Weimer's Works, Lebanon. It is furnace. 8x6 feet and weighs several tons.

The Tamaqua Rolling Mill resumed operations last Monday.

Ore is being shipped from Spang & Kauffman's wharf, at Evansville, to the Keystone Furnace Company, at Reading, and to Wm. M.

Kauffman & Co., at Sheridan. The Bloom Furnace made 8648 net tons of pig from in 1876, and is still in blast with no

stock on hand. The Marshall Furnace, Newport, blew out on the 28th ultimo, and will remain out until the

times are better. Mr. Bernhard Lauth, recently rolled three tons of % inch hoops in two hours and a half, on his new hoop machine. This is a day's work

in the old way. The Scranton Bessemer Steel Works resumed operations on the 9th inst.

The forge at Knauertown, Chester county, ent into operation on the 9th inst

Quite a number of the machinists and blacksmiths at the Scott Works, Reading, were discharged on the 13th inst. On the first of the year a deduction from 15 to 25 per cent, was made on the wages of all employes. The work on hand at this establishment is nearly all completed, and orders for new work are coming in very slowly.

The rolling mill of Potts Brothers, at Pottstown, resumed operations on the night of the

The Philadelphia and Reading Coal and Iron Company are apparently preparing for an extensive business this season. At the West Shenandoah Colliery, which has been shut down for the winter, 50 men and boys have been put to work driving gangway, turning breasts, &c.

Henry Fulmer, the late purchaser of the Keystone Furnace, Keystone, intends putting it in blast as soon as possible, and is laying in a large stock of ore. The starting of this furnace will give employment to a large number of men

The Thomas Iron Co., who purchased the Thoma & Blanda Steel Works, have workmen engaged in taking apart the engine and other machinery in the said works, and are removing the parts to Hokendauqua.

Philadelhia and Erie employes, at Renova, are working ten hours a day.

The coke ovens in Dawson are in full blast, and turn out from 60 to 70 cars daily.

An accident happened at the Crowther Furnace, Newcastle, on Thursday afternoon, the 11th inst. The lining of the stack fell in, causing damage to the amount of about \$1560. Repairs are now being made, but the furnace will not probably resume operations before spring.

Wm. Tod & Co. are the new firm that succeeds Homer Hamilton & Co. as proprietors of the foundry and machine shops, at Youngstown. The present proprietors are Wm. Tod, John Stambaugh and Mrs. Margaret Gerwig.

A correspondent writes to the Sharon Herald as follows concerning the rumor that the Wheatland Rolling Mill is about to resume operations: "Mr. Theodore Wood, a member of the old firm of James Wood, Sons & Co. has made the creditors another proposition (the terms of which we do not know), and it is the opinion of well informed men that the creditors will accept the terms this time. In January of 1875, 10 per cent. was paid to the creditors by the assignees. During the following fall, some time during August or September, Mr. Wood proposed to pay the creditors 25 per cent. on the amount unpaid, making about 321/4 on the whole amount. The amount offered by Mr. Wood aggregated close to half a million dollars. This proposition was refused by the creditors, when a sale was ordered, and \$150,000 offered. The following January, at the appointed time, another sale came off. There was few moneyed men attended, and only \$100,000 was bid (about one-twentieth of the real value); of course that sum would not be considered, so the thing was postponed. So, with this fact in view, the creditors may not be so stiff now, but consider that something is better than

nothing and accept Mr. Wood's offer." The Easton Lock Works were sold at public ale Monday afternoon, the 15th inst., to Thos. S. Armstrong, for \$1000. It is the intention, we understand, of the purchaser to continue the manufacture of locks, and work will be resumed at the establishment at once

The foundry and machine shops of Schaeffer, Merkel & Co., Fleetwood, are running day and night with a complement of men, a number of machinists from Reading and other places being employed in addition to the usual number. This firm has lately obtained the contract for a large amount of work. Several Philadelphia parties have ordered a number of stationary engines, roller crushers and Bradford ore separators, to be used at their zine and lead mines in Illinois, Wisconsin and Missouri in crushing foreign matter. Between \$50,000 and \$100,000 worth of machinery has been ordered by these parties. About \$30,000 worth has already been manufactured and shipped to its place of desti-

Furnace No. 1, of Messrs. Seyfert, McManus & Co., proprietors of the Reading Iron Works, was blown in on the evening of the 17th, with good prospects of a fair trade. The first cast-The work is nearly finished of attaching coal

dirt arresters to the stacks of the new boilers, Ninety to a hundred boiler makers have been in which steam is generated for driving the

The Pottstown bolt machine and planers of the railroad company have been brought to Reading. The former has been placed in the blacksmith shop and the latter in the machine

J. M. Kaufman & Bro., of Auburn, expect to The large bed plate upon which the new blow in their Jefferson Furnace the last of

(Continued on page 11.)

RUSSELL & ERWIN MANUFACTURING COMPANY MANUFACTURERS OF HARDWARE.

Factories, NEW BRITAIN, CONNECTICUT, U.S. A.

Manufacturers' Agents and Dealers in General Hardware at our WAREHOUSES.

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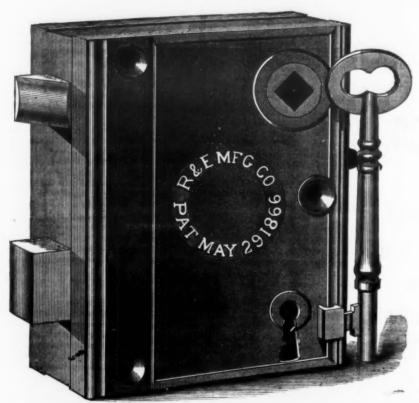
Nos. 45 and 47 Chambers Street.

SOUTHERN DEPARTMENT,

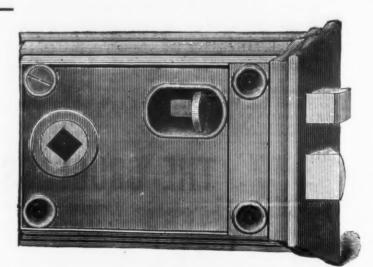
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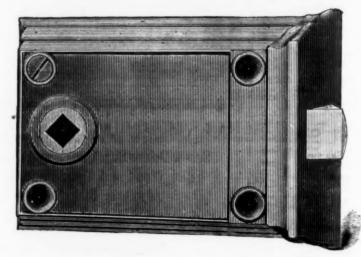
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BALTIMORE, MD., WM. H. COLE, AGENT, 17 South Charles St.



NEW GOODS.





In consequence of the high prices established for Brass Bolt Rim Knob Locks and Latches, we have determined to place upon the market a new line of BRASS-PLATED goods, for which we solicit orders for immediate delivery. We shall increase our variety as occasion may require.

These goods are furnished with BRASS-PLATED BOLTS and SOLID BRASS Keys, and in make and finish are equal to our standard goods.

		HOME UPRIGHT RIM KNOB LOCKS. PULL-OUT BEVERSE.			HORIZONTAL RURAL KNOB LATCHES.		
No.	Sige.		Without Knobs Per Dozen,	No.	Size.		Without Knobs Per Dozen.
B 861	4 inch.	Janus face, 2 Brass-plated Bolts Solid, Brass Key, without St	р. \$5.00	B 557	31 inch.	Brass-plated Latch Bolt	\$4.00
B 8613	4 inch.	" " with Stop.	5.25	B 552	3½ inch.	" and Slide Bolt	5.00

Discounts, same as on our regular goods.

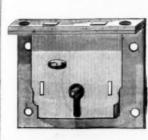
SCREWS.

We are now producing over 6000 gross per day of Flat Head Cimlet Point Screws of Quality and Finish which we CUARANTEE to be Superior to that of any other Screws manufactured in the WORLD, and we invite a comparison under the Severest Tests.

Our prices will at all times be as low as those of any standard manufactures, and we solicit letters of inquiry for quotations before orders are given elsewhere.

Our Screws are all packed in our new Patent Paper Boxes bearing our labels on which are Large Figures denoting the Size and Number.

CABINET LOCKS.





Our assortment of these goods is complete, and we can also supply a full line of "Eagle" and "Gaylord" Locks at manufacturers' prices. An Illustrated Catalogue will be issued at an early date. Parties can meanwhile order by either Eagle or Gaylord numbers.

BO

Cutlery.

FRIEDMANN & LAUTERJUNG

Solid Steel Scissors, Shears, Razors, Russia Leather Strops, Hones, &c.

"ELECTRIC RAZORS," And the "ELECTRIC SHEARS." Nickel Plated Bows.

Agents for the BENGALL RAZORS. AMERICAN TABLE CUTLERY, BUTCHER KNIVES, &c. 91 Chambers and 73 Reade Sts., N. Y. 423 N. Fifth St., ST. LOUIS, MO.

MERIDEN CUTLERY CO. Received the HIGHEST!CENTENNIAL:PRIZE.



MANUFACTURE ALL KINDS OF TABLE CUTLERY. known. The Oldest Manufacturers in America. Original Makers of the HARD RUBBER HANDLE. Always call for "Trade Mark" "MERIDEN CUTLE. Y CO." on the blade. warned and soid by all Dealers in Cutlery, and by the MERIDEN CUTLERY CO., 49 Chambers Street, New York.



THE MILLER BROTHERS CUTLERY CO.,

PATENT FINE PEN & POCKET CUTLERY

WEST MERIDEN, CONN.

The only Knives made that are put together in such a manner that there is no strain on the neg or frail part of the knife. We warrant our knives equal in cutting qualities and workmanship ide, and are acknowledged by English makers as the Bost American Knife. We also make

NICKEL & SILVER PLATED POCKET KNIVES which will not rust or become discolored when used as a Fruit Knife, and their cutting qualities are equal to any other knife. Orders filled from the factory, and in New York by Messrs. J. Clark Wilson & Co., No. 81 Beckman Street (who have a full stock of all patterns always on hand), and also by Messrs. G. B. Walbridge & Co., No. 99 Chambers Street.

NAUGATUCK CUTLERY CO., Manufacturers of FINE PEN & POCKET CUTLERY.

Cutlery.

ESTABLISHED 1859.

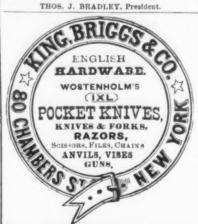
NEW YORK KNIFE CO.

MANUFACTURERS OF SUPERIOR

Table & Pocket Cutlery,

WARRANTED TO BE MADE OF THE BEST MATERIAL.

WALKILL RIVER WORKS, Walden, Orange Co., New York.



Young's Patent Folding Scissors.



Fac simile of the small size

York, Feb. 18t, 1876.
MARX BROS., Proprietors,
430 Broadway.

AMERICAN PEN AND POCKET KNIVES,

MANUFACTURED BY ASSACHUSETTS

My Blades are forged from the best Cast Steel, and warranted. To me was awarded the Gold MEDAL of the Connecticut State Agricultural Society; also a unit l and Diploma from the Musa Machanica' Asa'n Sapi... 182. Established 1853.

AMERICAN SHEAR CO.

Pen and Pocket Cutlery, Shears, Scissors and Pruning Shears,

HOTCHKISSVILLE, CONN. m, 298 Broadway, New York, with LANDERS, FRARY & CLARK.

HALL, ELTON





Factories, Wallingford, Conn.

Salesroom, 75 Chambers Street, New York.

JOSEPH S. FISHER, F.

No. 411 Commerce St., PHILADELPHIA George Wostenholm & Son,

"Limited."
Washington Works, SHEFFIELD,

WALTER SPENCER & CO., Steel and File Manufacturers, Rotherham, ENGLAND.

Corporate Mark NOSPENCER ROTHERHAM

Granted 1777.

VAN WART, SON & CO

Hardware Commission Merchants, EXPORTERS AND IMPORTERS, BIRMINGHAM, - ENGLAND,

McCOY & COMPANY, 184 & 186 Duane Street, N. Y. George H. Gray & Danforth,

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d

F. W. TILTON.

17 Oid Leves Street, New Orleans.

At each of these piaces a complete assortment of sames of Hardware and Fancy Goods will be found, in using all new descriptions. Sole Agents for

John Rimmer & Son's Celebrated Harness and other Needles. W. Clark's Genuine Horse Clippers. eydel's "Ashantee" Pocket Hammock

McCOY & COMPANY, BORAX A SPECIALTY, 134 & 136 Duane St., New York.

ENGLAND.

Importer on Commission

Celebrated I-XL Cutlery, Razors,&c HARDWARE, CUTLERY, GUNS, &c. W. SANDERS, Agent,

76 Reade Street, N. Y.

CORPORATE MARK

Joseph Rodgers & Sons

CELEBRATED CUTLERY, No. 82 Chambers Street, New York

F. & W. CLATWORTHY, Agents. The demand for Joseph Rodgers & Sons productions having considerably increased, they have, in order to meet it, greatly extended their

Manufacturing Premises and Steam power.

To distinguish Articles of Joseph Rodgers & Some' Manufacture, please to see that they bear

OWEN & CAMPBELL,

PEN AND POCKET CUTLERY.

All blades forged from the best English Cast Steel, and Warranted. Each knife i made in the most substantial and compact manner, all articles used being of the best quality. All blades stamped Owen & Campbell, Philadelphia.

Orders filled from the Factory Rear of

220 N. Second St., PHILADELPHIA

W. HARROLD, Old Colony Iron Cutter, No. 3.

Will Cut 5-16 dia. Sheet Metal PRICE, \$20.00.



Send for catalogue. Manufactured by

OLD COLONY RIVET WORKS 34 Warren St., New York.

(Continued from page 9.) INDUSTRIAL ITEMS.

PENNSYLVANIA.

Lowry & Eichelberger have been running go into blast soon both the forge and furnace, at Barre Forge, The Lawrence under a lease since June, 1876. All the metal made at the furnace is worked up in the forge. The Packerton Car Shops built 3800 cars last

The Pencoyd Iron Works, Philadelphia (A. & P. Roberts), are running to their full capacity, baving some important contracts on hand, among which we name 4000 axles for the Pennsylvania Trust Co. and a large quantity of bridge iron, &c.

PITTSBURGH AND VICINITY. A secret session of the Wrought Iron Pipe Manufacturers' Association was held in the Monongahela House on last Wednesday.

Another session was beld on last Thursday.

The Superior Rail Mill, which has long been lying idle, has, it is said, been purchased by a party of Eastern capitalists, who intend to convert it into a Bessemer steel works.

Messrs. Wm. Clark & Co. announce that they will give 300 bushels of coal per week to the

poor of Lawrenceville. The muck rollers at Wm. Clark & Co.'s Hoop Mill were reduced 6 cents per ton on Monday,

the 13th Inst. The Tin Plate Works, at McKeesport, have

resumed operations. On Thursday night, in 11% hours, there were turned out 600 rails, each 30 feet long, at the Edgar Thomson Steel Works.

NEW JERSEY.

William J. Tsylor has leased the furnace belonging to the Port Oram Iron Co., at Port Oram. The furnace was put in blast some ten days ago and is working very satisfac-

The South Wheeling Glass Works resumed operations on Monday, the 22d inst.

A vein of hematite iron ore from 3 to 31/4 feet thick was found a few days ago on the farm belonging jointly to Wm. Exley and George Crumbacker, on Chapline Hill, near Wheeling. At the same time rich veins of coal were discovered on the property. The ore was analyzed by Charles Dwight, and found to contain 34 per cent. of iron. It is intended to develop th ore as soon as the weather will permit.

The Belmont Nail Works Co.'s nailers and heaters were at work on the 19th, after a stop o about six weeks.

The new engine of the Benwood Mill, o Wheeling, will have a trial run in-a few day in the presence of the stockholders and other interested.

NORTH CAROLINA.

Every blast furnace in this State is out o blast, and there is very little prospect that more of them will blow. The product will not bea shipping and the local trade is limited.

The Madison Furnace, J. W. Derr, proprietor Lincolnton, Lincoln county, will run for two o three months the present year to supply th local demand.

The Rehoboth Furnace, at Iron Station, wi run to work up stock.

The Buckhorn Furnace, Lockville, made 4 ons of iron in 1876. оню.

On the 5th inst. notices were posted up in

the Cleveland Rolling Mill Company's Works to the effect that the mills would stop on the 20th inst.; also, owing to the depressed state of business, a reduction of from 13 to 15 per cent. would be made after the above date.

Mr. J. H. Roads bought in the Portsmouth Agricultural Works at the sale on the 16th

The Gaylord Rolling Mill, Portsmouth, suspended operations two weeks ago for want of pig metal, the closed river preventing purchases arriving there.

The Lake Eric Iron Company, Cleveland, are working a force of 120 men on stock.

The mill of the Standard Iron Company, at Cleveland, has been closed for a short time to permit the taking of the annual account of stock. The galvanized iron shop has been shut down for a short period.

Forty-five men are now employed at the shope of Miller, Jamieson & Co., Cleveland.

The Novelty Iron Works Company, of Cleveand, had an excellent business year in 1876, and are now operating quietly preparatory for the receiving of profitable orders for 1877. A 10% ton roll for use at one of the rolling mills of the city is being fitted up at their shop, and a number of the patent hose reels are being con-

The Tod Brier Hill Furnace has blown in. The Grafton Furnace, at Leetonia, will shut down about Feb. 1.

Clinton Furnace lands are again offered for sale by the sheriff of Scioto county, the sale to take place on the 5th prox., at Portsmouth. Brown, Bonnell & Co., Youngstown, recently

made a large shipment of nails to Canada.

The Falls Rivet Company, the Falls Wire Company, the Taylor Wire Cloth Company and other manufacturing firms of Cuyahoga Falls, are doing a good business.

Two new boilers, 60 feet in length, are being made at W. B. Pollock's Boiler Works, Youngstown, for Andrews & Hitchcock, to be added to the battery at their Hubbard furnaces.

Works, Steubenville, ceased operations for a usual custom of the company. Between 500 tiff. A new trial is ordered. and 600 hands are employed at this establishment, the product of which is nails.

The Acme Glass Works, at Steubenville, are about resuming operations.

again double turn on Monday, the 22d inst.

blown out for want of coke, and Sheridan only six miles up the river!

The Buckhorn Furnace is out of blast, having stopped up for two or three weeks, but will

The Lawrence Iron Works, Ironton, elected the following directors: Cyrus Ellison, Jas. Thomas, George T. Scott, Evan Williams, W. L. Keepers-the latter taking the place of John Ellison, deceased. All the stockholders are directors now. The Ætna Iron Works elected as follows:

Geo. Willard, Cyrus Ellison, W. C. Amos, Dr. McGovney, A. T. Dempsey, E. Bixby and W. H. Enochs-the latter taking the place of John Ellison, deceased. The directors organized by choosing Geo. Willard, president; E. Bixby, vice-president; and Geo. K. Hosford, secretary

The Belfont Iron Works Co., Ironton, at the last directors' meeting made a cash dividend of 5 per cent.

The Iron and Steel Mill, Ironton, commenced running again Monday, the 15th instant.

The blast furnaces of Missouri are pretty well silenced by the depression in the fron trade, there being but six in blast out of a total of 28. MICHIGAN.

The Morgan Furnace will blow out this

The Champion Iron Co. have in contemplation the purchase of new and elaborate engines and hoisting machinery, which will be more owerful than any now in use in the district.

The two furnaces belonging to the Jackson Iron Co., situated at Fayette, were considerably damaged by fire on the 22d ult. One account says an explosion occurred in No. 2 stack, and another says one of the arches gave out. It is stated that the damage amounts to from \$35,000 to \$50,000, and is principally confined to the No. 2 stack, the hoist and loss of buildings. The No. 1 stack was likewise dam aged to a considerable extent. It is the opinion of Captain Merry, the agent of the company in that city, that the furnaces will be rebuilt and put in working order as soon as possible.

The following table, from the Marquette Mining Journal, shows the output of ore by each mine during the year 1876, including ore to

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*Does not include product of Ploneer Mine, from which we have no report.

Against a total of 910,840 gross tons in 1875, and showing an increase of 66,392 tons. The aggregate value of this output, on the cars at the mine, was in round numbers, \$4,150,000.

MENTUCKY. The shipments of iron ore from Carter county to Hunnewell furnace during last year

were : 5884-56 ** Bellefonte Furnace will blow out in a few

Hunnewell Furnace will not finish her repairs and go in blast before the end of the

month. Charlotte Furnace is out of blast.

INDIANA. Kerrick & Winegardner, of Indianapolis, are shipping a large quantity of machinery South and to the Pacific states. They report business improving.

The Terre Haute Iron and Nail Co. were stopped for two weeks, but started up on Monday, the 22d inst.

WISCONSIN.

Rumors reach us that the Milwaukee Iron Co. are to put a force of miners at work on the Breen Mine immediately, with the expectation of having several thousand tons of ore ready for shipment as soon as the railroad is prepared to transport it .- Menominee Herald.

An important point in commercial law has come up, which may be stated as follows: Charles B. Wood sued the Erie Railway Company for damages to a carriage sent on one of its cars, and was non-suited because he was doing business under the name of "Woods Broa." contrary to the statue, there being no partner. He appealed, and the General Term reverses the decision, holding that the bill making the car-On Friday, the 22d ult., the Jefferson Iron riage deliverable to the carriage warehouse company meant a contract to deliver it to the month or six weeks, in accordance with the party entitled to it, who was in fact the plain-

The Carron Iron Company, Seotland, havedecided upon extensive alterations and improve-

ments in their works, which, if carried out as The Glass Works at Martin's Ferry, after a at present contemplated, will cost £100,000. rest of one week, have started up again in full Additional space will be secured for workshops on a settled plan, in heu of the present scat-The Wire Mills, at Cleveland, started up tered and dilapidated buildings. The company intend to introduce into the new shops vertical The Iron and Steel Furnace, Ironton, has punching machines and other appliances.

PEACE & HOGAN, VULCAN SAW WORKS.

TRADE MAR Patent Ground RANGER W. PEACE & CO.

Circulars, Cross-Cuts, Mill, Mulay, Gang, Hand, "100 and Butcher. Molding and Planing Knives, Plastering Trowels, Miter-

ing Rods, &c. Union Avenue, Tenth and Ainslie Streets, BROOKLYN, E. D., N. Y. OFFICE & WAREHOUSE, 59 Beekman St., New York.

ESTABLISHED 1857. E. C. ATKINS & CO., Indianapolis, Ind.,

Saw Manufacturers and Repairers. GENUINE SILVER STEEL DIAMOND X CUT SAW.

\$1.50 Per Foot.

IT BEWARE OF THE IMITATION CALLED "DIAMOND TOOTH," _#1

Wheeler, Madden & Clemson **EAGLE** B

MFG. CO.,

MIDDLETOWN, - - - - NEW YORK.

WARRANTED CAST STEEL

Of every description, including Circular, Shingle, Cross-Cut, Mill, Hand, WOOD SAWS, Etc., Etc.

AMERICAN SAW

Movable Toothed Circular Saws, PERFORATED CROSS-CUT SAWS

And SOLID SAWS of all kinds.

E. M. BOYNTON,

First-Class Saws, Saw Frames, Cross-Cut Handles, Tools, Files, &c. Also Sole Proprietor and Mfr. of the Genuine Patent Lightning Saw,

Also Sole Proprietor and Mfr. of the Genuine Patent Lightning Saw,
No. 80 Beekman Street, NEW YORK.

Special attention is called to my new Centennial Saw,
patented March 28th, 1876; Special File and Saw-Set
combined, patented June 20th, 1876; Cross Cut (Loop)
Saw Handle, patented February 18th, 1876; New OneMan Saw, with Patent Double Removable Handle Attachment, March 28th, 1876. New Patent Champion
Clearer Tooth, patented August 18th, 1876; Saw Set,
patented Nov. 28th, 1878-a sperfect Set that a blind man
can use to condense like a Hammer Set perfectly; Crossbar Wood Saw Frame patented Nov. 12, 1872; also Cross-Cut Handle, with castings, patented Feb. 15, 1870.

These goods complete the scientific tools for cutting timber, instead of wearing it off with notched V
teeth (which are like a fractured plate sharpened).

AWARDED CENTENNIAL MEDAL AFTER ACTUAL TEST.



PHILADRIPHIA, November 11th, 1876.

Product: Saws in great variety; special improvement in shape of teeth, called Patent Lightning Saw.

Name and Address of Exhibitor: Eben Moody Boynton, New York.

The undersigned having examined the product herein described, respectfully recommends the same to the United States Centennial Commission for award, for the following reasons, viz:

Report: "Being of very Superior Quality and of great Practical Utility."

DANIEL STEINMETZ,

Signature of the Jadge.

J. D. IMBODEN, of Virginia,
J. Given by authority of the U. S. Centennial Commission.

J. L. CAMFBELL, Sec'y.

A. T. GOSHORN, Director General.

FORT PLAIN SPRING AND AXLE WORKS.



FOR SPRING TRADE.

All dealers in SPRINGS AND AXLES will find it to their interest to send to us for ce List and Discounts. WOOD, SMITH & CO., Fort Plain, N. Y. Price List and Discounts.

C. R. MOON & CO.,

WROUGHT IRON HARDWARE SPECIALTIES FOR WAGONS. And all kinds of CARRIAGE AND WAGON MALLEABLES,

MOON'S IMPROVED NECK YOKE, espest in the market. Send for Catalogue. Correspondence of the control of the contr The Best and Cheapest in the market. Send for C. R. MOON & CO., 103 Scranton Ave CLEVELAND, OHIO.

BARKER

Iron, Steel, Nails. HEAVY HARDWARE, WAGON AND CARRIAGE MATERIAL, DRILLS, ANVILS, BELLOWS, VISES, CHAINS, &c.

CHICAGO ILLS.

IRON BLOCK PLANE.

1-2 Inches Long, 1 3-4 Inch Cutter, \$9.00 per dozen.



STANLEY RULE AND LEVEL COMPANY, Manufacturers J Pactories, New Britain, Conn. Warerooms, 35 Chambers St., Y.N.

"STAR"

NORWAY IRON

FANCY HEAD BOLTS. Carriage & Tire Bolts. V Star Axle Clips, &c.

TOWNSEND, WILSON & HUBBARD, 2301 Cherry St., Philadelphia, Pa.



The Original and Only Establishment Manufacturing the

Made of Best Quality

SQUARE NORWAY IRON.

WORKS, Columbia Avenue, Hancock and Mascher Sts.,

OFFICE, 145 Columbia Avenue (Late 2030 Arch St.),

PHILADELPHIA.

CARRIAGE BOLTS.





Clark's Patent Carriage Bolt.

Best Bolt manufactured for all kinds of agricultural machinery. Will not split the wood, and cann MANUFACTURED BY

CLARK BROS, & CO., Milldale, Conn. Also Manufacturers of

Plow and Machine Bolts, Coach Screws, Nuts, Washers, Tire Blanks, Rivets, etc. Send for Illustrated Price List,

HOOPES & TOWNSEND,

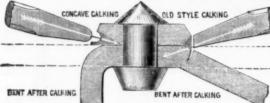




Keystone" Boiler Rivets,

BRIDGE & SHIP RIVETS Boiler Explosions & Connery's Concave Calking.

Medals and Diploma's awarded by the Franklin Institute Exhibition of 1874.



Patented May 1874. Reissued August 1876 JAS. W. CONNERY, 689 N. 13th St., Philadelphia

WORCESTER, MASS. Established 1867.

Standard Machine Screws,

Square, Round, and Hexagon Head Set & Cap Screws, in Iron, Steel and Brass.

We have adopted the American Screw Co.'s price list for Machine Screws. Attention is called to our reduced price list for Set and Cap Screws, adopted January 1, 1877. A full line of all goods kept in stock at both the factory and store of our agents,

H. S. MANNING & CO., No. 111 Liberty St., N. Y. Send for Lists and Discounts.









Heads and points to sample.

1RON, STEEL and BRASS. Lyon & Fellows Mfg. Co., Cor. 1st and North 3d Streets, Williamsburgh, N. Y.

TUCKER & DORSEY,









26, 28 and 30 Humboldt St., cor. Debevoise, Brooklyn, E. D., N. Y. Manufacturer of Standard TURNED MACHINE SCREWS.

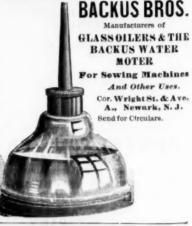
Case-Hardened Set, Cap and Gibb Screws, Hexago Collar, and Drilled Head Screws, Agraffes and No Belts. Special Screws, Rivets, &, made order of hon, Steel or Brass. Also Brass Knobs of t

J. Billerbeck & Co., KEYSTONE SCREW CO.,

IRON GIMLET - POINTED WOOD

17th & Venange Sts., Philadelphia.





R. COOK & SONS,

Carriage & Wagon AXLES,

WINSTED, CONN. ESTABLISHED 1839.

TACKLE BLOCKS BURR & CO.,

Patent Iron Strapped Blocks, ALSO, MANUFACTURERS OF HOPE STRAPPED BLOCKS. 31 PECK SLIP, NEW YORK.

H. D. SMITH & CO.,

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Manufacturers of the

BEST QUALITY CARRIAGE MAKERS' HARDWARE.

Manufacture the Largest Variety of Forged Carriage Irons of Best Material and Workmanship.

PRICES LOW FOR QUALITY OF WORK FURNISHED.

SEND FOR PRICE LIST.

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BAR IRON

HARDWARE.



WM. H. HASKELL & CO.,

Pawtucket, R. I.

Manufacturers of

COACH SCREWS (with Gimlet Point).

Machine and Plow Bolts, FORGED SET SCREWS AND TAP BOLTS. H. B. NEWHALL, Agent.

STANDARD NUT CO.,

Pittsburgh, Pa.,

HOT PRESSED Square & Hexagon Nuts.

BOLTS, SPIKES, RIVETS, &c. H. B. NEWHALL, Agent, 11 Warren Street, N. Y.

Penfield Block Works,

Lockport, NEW YORK,

Tackle Blocks,

IMPROVED IRON SHEAVES.

Our Iron Sheaves when used in Blocks do not add to their cost. The deep groove protects the rope, and the iron will not warp, check or crack, as lignumvite is so liable to do. A trial will satisfy.

HENRY B. NEWHALL, Agent,

No. 11 Warren Street, New York.



Socket Firmer, Framing, Corner, Coach Makers' & Farmers' Socket Chisels, Car penters' Slicks, Tang Firmer Chisels & Gouges, Socket Gouges, Millwrights',
Paring & Turning Chisels & Gouges, Hazor & Oval Blade Coach Makers',
Wagon Makers' & Farmers' Drawing Knives, Shingle Shaves, Carving
Tools, Boring Machines, Tool Chests, Awl Blades, Brad Awls &

Tools, Peg Breaks, Awi Hafts, &c. Consult your interest by set ding for our prices before placing your Spring orders

GEORGE PARR, - - Buffalo, N. Y.

The only **GENUINE D. R. BARTON** Tools

Cor. Mill and Furnace Streets,

HEATON & DENCKLA, - 507 Commerce Street, Philadelphia, Pa.

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- 32 Oliver Street, Boston, Mass.

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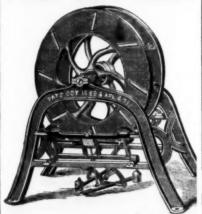
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First Page.—A Practical Electro-Plating Plant*
An Improvement in Cut Nails. Metric System—The
Other Side. Importance of Studying Natural Phi-

Third Page.—New Patents. A Note on Files-Blackwell's Island Bridge. Fifth Page.—The Ashtabula Bridge.

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Sails and Steam.

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of Stove Manufacturers.

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1876. Determining the Velocity and Lesway of
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Thirtieth Page. - New York Wholesale Prices of Hardware and Metals. Thirty-first Page. New York Wholesale

Thirty-fifth Page.—Philadelphia, Buffalo, ciunati, Pittsburgh and Detroit Hardware and I Pilees.

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The Condition of the Blast Furnace Industry of the Country.

We give in another column a table, compiled from original returns, showing in detail the condition of the blast furnaces of the country on the first of January, 1877. The table is very complete, the furnaces of Texas and Utah, three in number, being the only ones not heard from, and these are probably out of blast; but this is immaterial, as they are so small they affect the aggregate but little.

To avoid any possible misunderstand-

ings, we again make the following explanations as to the tables :

1st. The divisions of localities are geowhich furnace supplies are drawn. 2d. The columns "in blast" and "out of we have reports, and their footings will not equal the footings of the column of to- half of the rolled iron, inclusive of tal number. 3d. We have included some completed, and in one or two cases some furnaces that have been reported abandoped, as their owners do not so report them. 4th. The column of capacity per which use coke irons almost entirely. week is much in excess of what the regular working of the furnaces will showstoppages, slow working and various other interested, combining to reduce the make below the furnace capacity.

For the purpose of comparison we give below tables showing the condition of the furnaces at corresponding dates of 1874, 1875, 1876, 1877:

2010, 2010, 2011.	In Bla	ist.		
Charcoal		1875. 159 130 81	1876. 95 100 98	1977. 78 87 84
Total	410	363	293	244
Ot	ut of B	last.		
	1874.	1875.	1876.	1877
Charcoal		145	186	209
Anthracite		87	195	136
Bituminous		96	109	123
Total	259	328	420	468
387 - 1				mark and

We have on previous occasions, when publishing these tables, called attention to the fact that they showed less of a decrease in the bituminous furnaces than in either anthracite or charcoal. To make this more evident we give the following table of percentages of entire number reported

In I	Mast.			
	874.	1875.	1876.	1877
Charcoal		51	84	26
Anthracite		60	40	39
Bituminous		46	47	41
	-	-		Sheet .
Total	62	5.2	41	31
Out of	Blast.			
	574.	1875.	1876.	1877.
Charcoal		40	66	74
Anthracite		40	60	61
Bituminous		54	53	59
	-	STREET,	_	_
Total	38	48	59	66
While the decreas	e in	the	number	of

charcoal furnaces in blast has been one half and of anthracite one-third from 1875 to 1877, the decrease in bituminous furnaces has been one-ninth. There are a number of reasons for this. In the first place, the conditions of the bituminous furnaces, especially the financial, were such that a larger portion of them more readily succumbed to the panic. This portion of the blast furnace industry is of comparatively recent date. Many of the individuals and firms owning coke furnaces had but little experience in the practical details of making pig iron, and in many instances their capital was in keeping with their experience. The heavy risks and the extravagances of ignorance could be borne when iron was \$50 a ton and capital plenty at high rates, but when the crash came and economy, close management and capital were needed for successful working, they were wanting and inevitable ruin overtook them. In other cases, however, owners of furnaces of ample means and large and suc cessful experience deliberately blew out their furnaces, declaring that they could not and would not make iron at the ruling prices. This is the position assumed by some of the best iron masters of the Shenango Valley, notably those at Sharpsville.

But there is another reason that is patent to those who have watched the course of trade, and that is that for the past two years especially, not only has the relative consumption of Western-made merchant iron been constantly on the increase, but the proportion of bituminous iron used in

For proof of the latter fact we need only refer to the tables published in a previous issue, showing the decline in the shipments of anthracite irons West, and also to the fact that for many uses in the rolling mill, for which charcoal irons were formerly regarded as indispensable, coke irons are now not only used but preferred.

The truth of the former statement, viz. that the consumption of Western-made merchant iron has been on the increase, is best shown by the following tables:

Number of Kegs of Nails made in States using

Bituminous Pig	Irons in t	he years 187	3-1875.
West Virginia Kentucky Ohio Indiana Illinois	1873. 878,653 460,618 98,530 33,500	1874. 1,084,027 102,411 845,052 150,279 85,000	1875. 1,035,772 148,473 592,768 185,968 88,561
Totals		1,966,769 4,912,180	2,046,562 4,726,881

Tons of Mershant Bituminous Pig			
West Virginia. Kentucky. Ohio Indiana Illinois. Michigan. Wisconsin. Missouri	1878. 3,863 26,569 118,709 4,500 5,240 4,109 8,601	1874. 1,609 \$3,359 110,556 7,876 4,740 5,760 275 12,370	1875. 2,105 20,936 116,178 11,465 8,000 3,450 14,487 14,144
Totals	171,591 875,133	166,045 864,538	190,715 861,594

We do not include Pittsburgh and the Shenango Valley in the above table, though the iron in these regions is almost graphical for the most part, and are not entirely from bituminus pig iron, as we made with reference to the points from have no figures of make in these sections separate from those of the balance of the State of Pennsylvania. If we had the blast" only show the stacks from which showing would be still better. Pittsburgh alone makes nearly if not quite rails, made in Pennsylvania; and with furnaces that are rebuilding and not yet the Shenango Valley added, the aggregate of bituminus made iron would be largely increased. It will also be seen that we have not included any states but those

Another item to be noted is that the only important increase in the number of furnaces during these years is in the coke causes which will readily occur to those furnaces. Taking the number of stacks, as given in the table, we have the follow-

1877 289 229

While new charcoal and anthracite furnaces have been built and enough old ones have been abandoned to prevent increase

We again call attention to the fact, as shown in the table, that the capacity of furnaces in blast is greater than those out of blast. This is especially noticeable in the case of the bituminous furnaces, 84 furnaces in blast having only about ten per cent. less capacity than 123 out of blast, or nearly fifty per cent. more.

A comparison of the table here given with the one published in our issue of Sept. 28, 1876, will show that in the interim a number of anthracite and bituminous furnaces have gone in blast, while charcoal furnaces have blown out.

	In E	Blast.	Out of Blas	t.
CharcoalAnthraciteBituminous	70	Jan. 1, 1877. 58 87 84	152 185	. 1, 77. 164 186 123

We have omitted from the reports of the charcoal furnaces for Jan. 1, 1877, in the above, showing the Pennsylvania and Tennessee furnaces, which were omitted in the September report.

No reference can be drawn from the inrease in charcoal furnaces out of blast as it is customary in some regions to go out by the first of the year; a charcoal furnace rarely making a consecutive blast of a year. On the other hand, the blowing in of anthracite and coke furnaces has a significance. It indicates either that the stocks are getting low and that there is a pros pective demand for iron at somewhat higher prices, or else that the decline in the price of labor and materials, with the exercise of closer economy, has reduced the cost of manufacture materially.

As to stocks, we are gathering information that will be incorporated in a subsequent article. This is to-day one of the most important subjects connected with the blast furnace industry, and we are getting information not only as to stocks un sold but also in hands of consumers.

The Brooklyn Bridge Wire.

As stated in our issue of last week, the contract for the Brooklyn Bridge wire has, after a series of tests, been awarded to Mr. J. Lloyd Haigh, New York. The material used will be crucible steel, furnished by Mr. A. B. Parker, the New York agent of Anderson & Passawant, of Pittsburgh. This firm is the successor of the older firm of Anderson & Woods. The weight of the rods are from 75 to 90 pounds, which gives some 1000 or than at any previous meeting, the interest 1050 feet per coil of wire These length and weights of rod are greater than those called for by the specifications, and a considerable advantage will result therefrom The tempering is to be done by the hot-air process in the coil, instead of continuously, as was supposed necessary at first. At the suggestion of the manufacturer, the tests are to be made a little more rigid by taking test pieces from both ends of each coil, instead of from one. The award was finally made on the ground of the lowest price for best material presented, and not as our English friends supposed it would be, to some firm "in the ring." If we are not mistaken in the clearer headed, more genial or more intelfigures, only one of the foreign bidders of fered wire at prices which, when duties and freight are deducted, would approach those of the best American bids.

The following are the names of the bidders and the prices offered:

Whole quantity 3400 tons-6,800,000 pounds

1. W. T. Henley & Co., London: Kind of steel not stated; 5%d. sterling per pound, equal to 13 1-10c., deliverable here.

An alternative bid at £30 per ton, free on board in London, including duties, but exclusive of freight, say, \$5 per ton, which would be \$17,000 in addition, and also insurance and other charges to be added.

2. J. Lloyd Haigh, Brooklyn: Crucible cast steel (according to letter addressed to the president), at \$7-10c. per pound.

Cleveland Rolling Mill Co., Cleveland, Ohio: Kind of steel not stated, at

Washburn & Moen Mfg. Co., Worces-ter, Mass.: Kind of steel not stated, 1 at 13 95-100c. per pound.

The John A. Roebling's Son's Co., Trenton, N. J. (two bids): 1. For crucible steel, sample marked O, at 9 cents per pound

2. Kind of steel not stated; sample marked R, at 6% cents per pound.

Richard Johnson & Nephew, Manches-ter, England: (Messrs. L. G. Tillotson & Co., 8 Dev street, N. Y., Agents.) Kind of steel not stated, at 18% cents per pound.

In order to give the widest range to bidding, bids were received and iron tested of all kinds, no restrictions being made upon the material used, save that it should be of sufficient strength and uniformity to come up to the requirements. The standard called for demands that the wire shall be of a uniform medium quality-that is, it must be neither too hard or high in its character, nor too soft or low in its temper. In order to insure this uniform quality, it is necessary that all the cable wire shall undergo the operation of hardening and tempering. There are several methods known by which this is done, some controlled by patents, and others of a secret nature. Whatever the process pursued by the manufacturer, the inspector has to satisfy himself that every ring of wire has undergone the operation.

One of the English competitors sent samples which, with one exception, fell far below the required strength, the wire in 100 feet lengths breaking with a weight of 2800 pounds, while the specifications call for 3400 as a minimum. The wire from Messrs. Richard Johnson & Nephew was exceedingly good in many respects, but its price was much higher than that of Mr. Haigh, even when the duty and freight are taken off. Since the work has been commenced by the contractor, wire has been turned out which has shown even a better tensile strength than that of Messrs. Johnson. A test made last week of a 10 ton shipment wire shows a tensile strength of 4550 pounds with '04 stretch and an elastic limit of 2800 pounds. The equivalent tensile strength per square inch is about 210,000 pounds. This is a considerable gain over the best foreign wire.

The Stove Manufacturers' Meeting.

We print on other pages a very full report of the first day's proceedings of the National Association of Stove Manufacturers, at their sixth annual meeting held this week in Troy, N. Y. We are usually able to give a report of the two day's proceedings in The Iron Age of the following week, but this meeting is so exceptional in its interest, and its proceedings are so important, that in order to publish as much as we feel it necessary to give we are compelled to continue it through two weeks. We hope our readers, especially those in the stove trade, will peruse it carefully. They cannot better employ a leisure hour than in carefully reading and thoughtfully considering the views so freely and intelligently expressed by the manufacturers on nearly all subjects of interest

In all respects, this was the most success ful meeting of the Association which has yet been held. The attendance was larger tical importance to the trade at large. Without flattery, we can truly say that we have never seen so intelligent a body of men assembled to represent any of our great national industries. During two days of active discussion there was not one impracticable suggestion made, and not one minute of the Association's time was consumed in idle talk for talk's sake. There was much wit as well as wisdom, but it was wit with a point and served to enforce a practical moral. We doubt if any one industry could marshal a representative body of finer looking, better educated. lectual men than compose the National Association of Stove Manufacturers Those who attended the meeting, even though coming from long distances and encountering great difficulties in the way of snow blockades and other unusual impediments to travel, were well repaid those who did not come have much to regret.

During the six years of its life, the National Association has enjoyed an albasis. The many doubts and misgivings schooners, these vessels, if of clipper build,

which were expressed by those first asked to join it, have not been justified by any. thing in the history of the Association, and it ranks to-day among the strongest trade organizations in this country. Member. ship is an honor as well as a benefit to the manufacturer, and association with the congenial spirits of the trade makes it a perennial pleasure.

Of the social features of the Association we cannot speak too highly. The trouble of attending the meetings is repaid a thousand fold by the benefits resulting from the promotion and encouragement of personal friendships among the members of the trade. It softens the asperities of business life, reduces the friction of sharp competition and strengthens confidence between man and man. Those who come to the meetings go home encouraged and refreshed, with a better opinion of their neighbors and a warmer regard for those who, in the struggle for business, they are often inclined to doubt and distrust. For these reasons we regret that a disposition is manifested to limit the meetings to one each year.

Of the business transacted at the Troy meeting we have not space in this issue to speak editorially. It has given us many good ideas and valuable suggestions, which we hope to lay before our readers in future numbers.

Sails and Steam.

From the New York World of Tuesday, 23d, we clip the following suggestive item in regard to the relative number of steamers and sailing vessels built upon the

A remarkable change in the character of the shipbuilding on the Clyde has for some time been going on, and during last year it reached very large proportions. This is the substitution of iron sailing ships for iron steamers, and the change is ascribed in some measure to the increase of late years in the price of coal, an increase which makes it difficult to run steaming at a profit. In 1873 there were hims at a profit. increase which makes it difficult to run stean-ships at a profit. In 1873 there were built on the Clyde 125 from screw steamers of 218,000 tons, and only twelve from salling ships of 19,000 tons were launched. But in 1876 only eighty-three iron screw steamers were built, while ninety-seven iron salling ships of 96,000 tons were constructed. This is in an increase of more than eight-fold in three years. The change is one which will be welcomed by sail makers and sailors, who generally dislike steam-ers for reasons of their own. During the era of economical engines and

slow freight boats, it was quite generally supposed that the days of sailing vessels were numbered, and that with the development of iron shipbuilding and a further progress in the direction of fuel economy, sailing vessels would be gradually abandoned. The real points of competition between sails and steam were not understood. The conditions seem to be these : A freight steamer is slow ; her model is rarely fine, because sufficient power caunot be afforded for speed; her carrying capacity is diminished considerably by engine and boiler space, while with the best of engines her coal bills are considerable. In addition to this there is a heavy interest account upon engines and boilers, which is largely increased by repairs, depreciation and the necessary alowance to be set aside as a sinking fund.

In the best days of clipper ships their

voyages across the Atlantic were almost

as good, upon the average, as those of the common trading steamer of the present day. In the olden time it was urged against a full clipper ship that she was so sharp as to materially diminish her carrying capacity when competing with the old-fashioned packet, bluff in the bow and square in the stern-all capacity and no speed. For this reason, as the clippers did not have to compete with passenger steamers in speed, the half clipper came into fashion, and it is a very long time since we have seen a clipper of the Red Jacket type. Now vessels of this class could compete very well in speed with the cheaper class of freight steamers. The reduction of capacity in the sharp model is partly, if not entirely, balanced by the loss of space occupied by engines and boilers, while the saving of the cost and repairs of the engines is almost a clear gain. The coal bill is partly offset by the greater number of hands needed, but a large proportion of it would be saved upon the clipper. Even with the largest margins allowed in favor of the steamer, it seems certain that, for much of the world's trade, the fast clipper ship would be cheaper and more profitable. It is also to be kept in mind that the cost of a clipper is less than that of a steamer, and the cost of taking care of her when she is idle very much less. We may, therefore, take it for granted that, until the price of good economical propeller engines, with boilers, is vastly reduced, the sailing vessel, and especially the clipper ship and three-masted schooner, will stand a good chance in all sorts of ocean tradmost unexampled prosperity. From small ing voyages, and in any kind of work, beginnings, it has steadily gained in if we except, perhaps, that of regular strength and influence until it has estab- lines of packets from port to port. When lished itself upon a broad and permanent iron masts come into use for three-masted

only to square rigged vessels, but also to steamers, since they can be made very the price of tin would in all probability fast and can be effectively handled by small crews. About the only complaint against them is that, when dismasted at sea, they have difficulty in getting spars large enough for them in foreign ports, and have to come home bark or ship rigged.

America's experience in building fast sailing vessels is such as to make this indication of a return to sails as a means of propulsion a very hopeful one. Our ships once beat those of the whole world, as our yachts do now, and it is pretty certain that if we should attempt it we could beat the freight steamers with sailing vessels.

The Statistical Position of Tin.

At this period of the year the annual Europe, and afford us a good opportunity the world's markets. The available supply for a series of years is shown in the following table:

1867. Tons. 8,700 Banca 4,520 Straits 7,069 Billiton 1,096 Australian	1868.	1869.	1870.	1871.
	Tons.	Tons.	Tons.	Tons.
	9,300	9,760	10,250	10,900
	3,052	3,585	5,058	5,298
	5,982	6,271	6,043	9,161
	1,305	1,737	1,593	2,700
Total 21,385	19,639	21,353	22,944	28,054
1872. Tons. English. 9,560 Banca. 3,203 Straits. 9,785 Billiton 2,946 Australian 150	1873.	1874.	1875.	1876,
	Tons.	Tons.	Tons.	Tons.
	9,970	9,942	9,800	9,400
	4,335	4,049	4,400	4,519
	6,963	7,577	11,300	9,521
	2,980	3,157	3,525	3,643
	2,990	5,800	7,218	7,130
Total 25,644	27,238	30,525	36,243	34,213

The foregoing shows that the only country whence the supply has materially decreased have been the Straits settlements. in trade with that colony while the value of silver and the rate of exchange were temporarily disturbed last year, and therefore has no deeper significance. Production there has not been checked in the least. If in some localities on the mainland of Australia it has slightly diminished by than made good by the larger output of Tasmania.

The deliveries to consumption in England and Holland were 20,829 tons in 1876, against 19,458, 14,253 and 11,310 in 1875 to 1873. In the United States they were 4472, against 4273, 4629 and 4313. The three countries together consequently delivered 1873, we find that while the latter since posing the trade. 1872 increased 25 per cent., the three leading countries absorbed or delivered, in Winter Regarded from an Economic armory. 1876, 62 per cent. more than they did in

The probable actual yield for 1876 we estimated a year ago at 32,100 tons. When the figures arrive from the East this will, we believe, prove to have been correct. Europe and America consumed last year, ter, and in fact the whole commercial according to estimates from London, 34,000 tons, against 32,500 and 27,000 in 1875 and which is due in any way to the weather. 1874. From this it is evident that tin at the comparatively moderate prices that we well know that once in a few years we prevailed during 1876, is very freely taken in the principal consuming countries, notwithstanding the dullness in general trade and the lessened demand for tin thereabout, came another winter with plates. It is, we presume, employed as an alloy for many purposes for which formerly it was too dear. In spite of these rather favorable circumstances, however, the statistical position in England and Holland has not improved, as will be seen in ten years, and on looking further back claims of the hand to specific training. When from the following tables:

. 1,684	Jan. 1. Tons. 6,018 2,872 970	Jan. 1 Tons. 2,89 4,22 98
. 11,109	9,860	8,10
	Tons. . 7,648 . 1,684 . 1,047	Tons. Tons. 7,648 6,018 1,684 2,872 1,047 970 . 780

Total AFLOAT. 403 1,000 2,183 4,722 4,391 4,165 Total.

STOCK OF TIN.

The visible supply, it will be seen, was 15,831 tons on the 1st inst., against 14,251 in 1876 and 12,274 in 1875. The price of Straits was £75. 10/, against £81 and

Prospects for the coming season in Europe are doubtful. There is nothing that we can now discern to hinder the free expansion of tin production. Consumption, it is true, may go on increasing plows. One curious fact in regard to this The result is only what must be expected. The in the same ratio at which it has been de- is that the further south we get the greater veloping of late years-sufficiently so to is the delay which a trifling fall of snow counterbalance a too copious output; yet causes. This is usually accounted for by the statistical position may not materially the fact that where snow falls only occaimprove, and if this should happen, specu- sionally little preparation is made to meet lators for a rise would hardly feel encour- it. In the latitude of New York, where aged to attempt controlling the metal, snow drifts but little, it ought not to preeven supposing the money market remained sent any obstruction to travel by rail. become disturbed by political events con- ones will do the work, and in the present whose possibilities have never yet been fath, than 2500 miles per month.

will show themselves greatly superior, not nected with Eastern affairs, obliging weak day of signal service weather reports, a holders of tin to realize, and in that case

The Responsibilities of Mechanics.

We find the following in a Western

A plumber in Cincinnati sued a customer for a bill of \$300. His demand was met by a coun-ter suit in which the customer recovered \$2000 damages on account of the injury to his property from the way in which the plumber had done his work.

Why not? We have in many cases seen costly houses, elegant in finish and supplied with all the modern conveniences, rendered untenable by bad plumbing. What is the owner of such houses to do ? If entirely indifferent to consequences he can let it and leave the unfortunate tenant reviews and statistics of tin reach us from to incur the risk of sewer gas poisoning, or he may occupy the premises himself of judging of the position of that metal in and trust to his life insurance policy to indemnify him in case of death from typhoid fever, pythogenic pneumonia, or any one of the long list of diseases which find their origin in decomposition going on in our sewers. If, however, he be not ignorant of nor indifferent to the dangers inevitably attendant upon defective drainage, he can only correct the defects at great cost and inconvenience. Walls must be broken, floors torn up, wood work pulled to pieces and the house rendered uninhabitable for weeks. Under these circumstances, why should not the plumber who contracts to do his work in "a workmanthe spirit, as well as the letter, of the architect's specifications, be held responsi-This decrease was due to the interruption ble? The plea that the materials and workmanship were as good as he could afford for the price agreed upon in the contract, is no plea at all. A man has no right to avail himself of the ambiguities and and heavy snow. omissions of a set of specifications on the one hand, or of the ignorance or credulity of an owner on the other, to "scamp" a partial exhaustion, the deficiency is more job so that he may make a profit out of a On the 23d inst. the British iron steamer properly. There is altogether too much dodging on the part of plumbers of the moral and legal responsibilities of their business. For the bad work of the time they blame the contract system, which leading tin consuming or distributing forces the plumber who wants a job to bid below all competitors; but if reputable 25,301 tons in 1876, against 23,731 in 1875, men would refuse to bid upon specifica-18,882 in 1874, and 15,623 in 1873. On tions against irresponsible competitors, we comparing this with the general supply should know where to draw the line beduring the corresponding years 1876 and tween the two classes of mechanics com-

Standpoint.

The present winter is probably regarded by a majority of people as an exceptional one, and upon this ground the business community, the railroads, shippers by waworld, justifies any delay or inconvenience Now, this seems to us all wrong, because are sure to have just such a winter. In 1866 or '67 we had a winter of great severity, with much snow; again in '72 or heavy snows, great cold and a general resemblance to an arctic climate. If we are not mistaken, there has been one very cold need educating, in order to fulfill their mission winter since. In other words, we have in the best manner. had three or four "exceptional" winters they are found to have been pretty frequent, as far as the records go. We must, 1875. therefore, accept them as a part of the expectations of our climate, and by doing so we shall then prepare ourselves for them to a certain extent.

The snow and ice this winter have been very serious obstacles to all kinds of business. In this city it is probable that the actual cost of moving a ton of merchandise has been more than doubled during the snow blockade. On the water it costs from this city to Boston, while the danger of moving freight in the harbor is so great that comparatively little can be done. The trouble which railroads have had will cost them many millions of dollars. Mile after mile of cuts are full to the roofs of the cars and out to the wings of the snow

snow storm need not take us by surprise. The business man and householder ought to be prepared for snow, since it is pretty sure to come abundantly once in three or four years, and it sometimes happens that the expense and delays which are caused by one storm are great enough to pay for all necessary precautions. In the future we are likely to have severe winters recurring at irregular intervals and alternating with winters extremely cold. The climate of a large portion of our country is sub-arctic in winter and semi-tropical in summer, yet people build houses and stores, carry on business in general, lay water pipes and build heating apparatus, as though May and November represented the extremes of our climate. For example, we build cities in which half the roofs are flat, and yet we know that any winter they may be loaded with 18 inches of snow and ice which must melt in position, and which will load them nearly to their limit of strength. If we consulted the conditions and built to meet them, the steep roof would always be used. In the matter of water pipes it is notorious that they are laid as though frost were an unknown visitor, while on a cold and windy winter's day nobody expects a building to be comfortably warm.

That such is our architectural practice and our business habit is not to be wondered at, since, as a nation, we are not yet adjusted to "the environment," but we may expect that as we progress these things will receive due attention. Our harbors are less troubled with ice in severe weather "like manner," and in accordance with now than they were 50 years ago, and it is not impossible that in the future the Hudson may be kept open for the greater part of its navigable length during the whole winter. It only needs consideration and a determined effort to enable us to overcome most of the evils entailed by severe cold

Turkey evidently means business: whether Russia does remains to be seen. price which would not cover the cost of Lotos sailed from New Haven for Constanwhat he agrees to do, if he were to do it tinople direct, having the most valuable cargo which ever left that port. It consisted of rifles and ammunition for the Turkish government, as follows: 70,000 Martini-Henry rifles, bayonets and scabbards; 1000 Winchester guns, 10,000,000 cartridges, 15,002,400 Martini shells, 15,000,000 bullets and 50,000,000 gun wads. The value of the cargo is \$1,769,100. Should the promise of war be realized, our manufacturers of the munitions of war will probably be kept busy with foreign orders. Just now it looks as if this country is about to become the world's

The Education of the Hand.

The Philadelphia Ledger, in an article on this subject, says:

It is an encouraging sign that the popular view of education is ever becoming broader and broader. Once it was limited to the common branches now taught in our primary schools. To know how to read, write and cipher was esteemed a fair education for a boy, and a liberal one for a girl. Now it is but a beginning-an introductory chapter to the volume of studies comprised in any respectable system of instruction. It is, however, almost wholly in the direction of mental development that this expansion of view has taken place. It is only now beginning to draw upon the publie that the mind is but one part of the man that the eye, the ear, the taste, the hand, also

Especially do we mean to recognize the we consider the large proportion of life's necessaries and comforts which are wholly dependent upon the skill and deftness of this physical member; when we recollect how important a part it plays in the civilization and we shall greatly reduce the injury which happiness of mankind, and how constantly it they occasion to trade and commerce, for is called into service of some kind by most of us, it seems strange that it should be left so largely to chance or to the mere habit of practice for its education. It is true that machinery has superseded much manual labor, but it has not, therefore, provided for the folding of the hands in idleness. On the contrary, it has taken upon itself the heavier and more automatic part of the work, leaving that which requires more adroitness and dexterity, and thus more than double to send a ton of coal making the education of the hand even more necessary than before.

As yet this branch of education has received but slight attention from either parents or teachers. The child's time is usually divided between study and play, and no systematic ar rangement is made to cultivate his manual skill. His powers of thinking are trained with care: his powers of doing are left to themselves boy and girl on leaving school have acquired much valuable information, much facility of thought, and much mental force. The memory, reasoning powers and imagination have all taste for study has been implanted, and a desire for still further advancement has been stimCondition of the Blast Furnaces of the United States, January 1st, 1877.

(Compiled for The Iron Age.)

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LOCALITIES.	Total number of stacks.	Number reported in blast.	Capacity pr. week	Number reported out of blast.	Capacity pr. week	Total number of stacks.	Number reported in blast.	Capacity pr. week	Number reported out of blast.	Capacity pr. week	Total number of stacks.	Number reported in blast.	Capacity pr. week	Number reported out of blast.	Capacity pr. wook
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	285	78	6,630	209	15,275	223	87	16,460	136	25,910	207	84	21,660	123	25.9

omed? Is it swift in motion; firm, yet pliable; quick to adapt itself to new requirements? Has habit made manual employment easy and pleasant? Is there a taste for any of the difin them, a sincere respect for them? Commonly, the reverse is the case. Too often the livelihood by any description of manual industry, and the girl as disinclined to take a upon such labor as something beneath them, and partly because they are conscious of an inferiority of power to execute it well.

It is plain that such a condition of things, if general, would be fatal to all our material intersts. But it is more than even this. It is fatal to the development of each man and woman. Individual excellence consists mainly in the proper balance of all the faculties, and when ome of them have been suffered to run to waste there must be a proportionate incompleteness of the whole. The education of the hand is necessary to bring out the best results of other training. "We must learn by doing," is a favorite Kindergarten motto, and one which lies at the root of that valuable system. Industrial schools are also accomplishing much in this direction, and the various schools of design, and similar opportunities in other branches, now opening up to the youth of both sexes, show that the public sentiment is awakening to the importance of this part of education.

It is, however, chiefly at home that we must look for the best accomplishment of this work. Nowhere are there better opportunities for the cultivation of the hand and heart together than in the performance of household duties and kindly offices among the members of the family. Children who are trained to perform accustomed to assist their parents in whatever they may have to do, will be happier, more use ful, better developed and more tenderly attached to the home which they have helped to make, than those who, through mistaken indulgence, have never been called upon for such exertions. Parents are largely responsible for this part of the children's education. Study part should be held sacred to home and its interests, and in such natural pursuits the hand will become skillful, and the respect due to honorable labor will be engendered.

Increased Locomotive Service.

The Railway Age says: For a good many nonths several of our railway companies have been experimenting on the :dea of increasing the service of their locomotives to double or more the old runs, while changing engineer and fireman at the usual intervals. Opinions continge to differ as to the advantage of these long rune, but so far as we learn, where the plan has been fairly tried the results have been found satisfactory to the managers, although the engine men, and sometimes the machinery department, are disposed to assert that the engines are being overworked.

The New York Central and Hudson River Road has made a very thorough test of the principle, and we learn that for some time 50 engines have done the work, in freight trains, formerly done by 80, thus dispensing with say \$300,000 worth of machinery in the freight service alone. Of course the 50 engines have had harder work and needed more repairs than they ordinarily would, but is it likely that the extra repairs have anything like equaled the saving effected, taking into account the extra hands required in the old way for cleaning, watching and turning, the cost and wear of firing up, etc., to which is to be added, if the practice is made been strengthened by active exercise. The permanent, the large saving in capital invested? As an illustration of the great amount of work that may be obtained out of an engine, we are ulated. This is all excellent, and we would informed that one on the New York Central not disparage it by a single word. But how is made 8436 miles in a month. The average locoeasy. But the latter may at any moment Large snow plows are not needed; small it with the hand, that wonderful instrument, motive mileage on the old plan is hardly more

In order to learn the results of practical experiments nearer home, the writer, a week or two ago, visited the shops of the Illinois Central Company, which have recently commenced ferent varieties of hand work, a desire to excel the long-trip system, and obtained from the assistant superintendent of machinery, Mr. Jeffrey, some interesting facts. Commencing youth is thoroughly indisposed to gain his with October last, the passenger engines which had previously run from Chicago to Campaign, 1271/2 miles, are run through to Centralia, part in her mother's household affairs. This is 2521/2 miles from Chicago, the engineers and partly because they have learned to look down firemen being changed at Champaign. Two trains each way are thus arranged. Similarly, two passenger trains each way are run daily between Centralia and Amboy, 228 miles, the engineers and firemen being changed at Wapella, the former end of the engine run; and another similar run is made from Amboy to Waterloo, 210 miles, engine hands being changed at Dubuque. On these three runs 12 engines do the work which 24 were formerly

Some of the freight engines have been given similar runs. All now run through from Amboy to Waterloo, 210 miles, the men changing at Dubuque; one runs through between Amboy and Centralia, and three have lately been placed upon the long run, between Chicago end Centralia, 2521/2 miles, one train running each way daily with two sets of hands. By this arrangement 18 engines-12 passenger and six freight-have been relieved from service; there has been a saving at the three intermediate stations, where engines were formerly changed, of about \$50 a day for men to clean, turn, watch, etc., and [about \$18 in the cost of firing the now surplus engines, to say nothing of saving the wear and tear to boilers from so frequent heatings and coolings, the cost of housing, and other station expenses where engines are kept. The following figures a certain portion of these duties regularly, and show the performances of some of the engines on these runs:

Engine 44 (passenger) made 7222 miles in October at the rate of 47 miles to a ton of coal (soft) and 16 miles to a pint of oil; in November, 7116 miles, averaging 48.4 miles to a ton of coal, 14 miles to a pint of oil. Engine 175, in November, 6333 miles, 46.9 miles per ton coal, 12 miles per pint oil. Engine 128, in October, and play should not absorb their whole time; a 6720 miles, 45.1 per ton coal, 17.87 per pint oil. This shows a more moderate consumption of fuel than the average for this and most other roads. So far as we can learn, the repairs on these engines have not increased at all in proportion to the saving effected. The officers of the road are very confident that the experiment

One very important principle, at least, has been settled by the various tests of the long run question. The locomotive equipment of many of our roads might be considerably reduced without diminishing the capacity of the road for business, and hence new roads can be equipped at less outlay than was heretofore onsidered necessary. It is a very material consideration to many new companies to be able to save one-half or one-third in the number and cost of their locomotives, and many old companies would be very glad to have in hand the money spent for the engines which they now find they can dispense with.

Restoring Faded Ink .- Mr. Garside, of Southport, England, describes in the Pharma centical Journal a method he successfully employed for restoring the legibility of a letter which had been submerged in the wreck of the Schiller, and which was quite illegible until submitted to this process. The letter was carefully brushed over with solution of anlphocyanide of potassium (1 in 20), and then, still damp, held over a dish containing hot hydrochloric scid. The writing thus developed was of a deep red color. The philosophy of the process is this: The iron of the ink is niethe process is this: The fron of the lok is pre-cipitated as peroxide upon the fibers of the pa-per, and remains when all other coloring matters are washed away. Being in an insoluble form, however, no effect is produced by the reagent until the fumes of the acid have rendered it soluble. Probably ferrocyanide of potassium would answer as well or better than sulphocy-anide.

GIMP, CARPET, CARPET, CIGAR BOX, CIGAR BOX, Factory at Fairhaven, Mass. N. Y. Salesroom, 117 Chambers Street.

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REPRESENTING THE

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The "IRONMONGER AND METAL TRADES' ADVERTISER" was established in 1859, and 18 the oldest and only representative in England of the Iron, Hardware and Metal Trades. The conductors have always kept in view their original object, which was to provide a journal for the benefit of the trades they aspired to represent, independent of any influence or personal interest whatever. The gratifying result has been that the "Inonmonogn and Metal Trades Advertiser" has had to be enlarged repeatedly, and, at the present time, in its eighteenth year, contains 156 quarto pages per month, has an efficient staff of writers and is recognized throughout the world as the organ of the British Iron, Hardware and Metal Trades.

SPECIAL FEATURES.

Notes of Novelties .- This is a department of the journal always watched with interest by the retail trade, as it contains an account, from month to month, of the novelties which manufacturers and inventors are introducing to the notice of the trade. These articles are freely illustrated. Special Correspondents.—The "Inonmonger" has a deserved reputation for its special correspondence from all the principal manufacturing centers. The writers are gentlemen holding important positions in the districts with which they are connected, and possess facilities for acquiring information specially suited for the commins of the "Inonmonger." The Month, and Legal and Mayisterial News are each departments of the journal, containing a digest of all matters of direct interest to the Iron, Hardware and Metal Trades. In addition to the above there is a carefully classified list of Patents, together with Editorial and Foreign Notes, Statistics, Summary, &c., &c.

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American subscriptions may be paid and advertisements arranged through the publisher of The Iron Age, 10 Warren Street, New York. The tariff above will be adhered to, reckoning U. S. currency at the rate of \$5 to the £.

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Screw Drivers of all varieties, for Scrapers, nox Ordeners, varied Hoes, Garden Towels, Bornef Knives, Mining Knives, Fish Tunners, Butter Knives, Cake Turners, Cleavers, Hammers, Carpet Stretchers, Tack Claws, Marking Awls, Carpenters' Awis, Belt Awis Itec Awls, Cake Turners, Cleavers, Hammers, Carpet Stretchers, Tack Claws, Marking Awls, Carpenters' Awis, Belt Awis Itec Awls, Carpet Carpeter Company, Carpeter Knives, Cold Chiseis, Handles, Solid and Brick Punches, Box, Hooks, Bow Pins, Bull King, Needles, Boil Rings, Bill Hooks, Bill Adjusters, Curing Irons (Wrought), Cork Screws, Cattle Leaders, Corn Hooks, Doyster Knives (Kitchen, Saw Sets (Hart's Patent), Saw Sets (Alken's Patent),



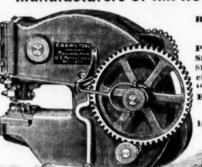
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For particulars address the Patentee

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COMBINED Punching and Shearing Machines, Single Power Punching Machines with Shearing Attachments, Rotary Shearing Ma-chines, Steam Riveting Machines, "Atherton's" Patent "Cam," Steam Engines, Hair Ficking Machines and

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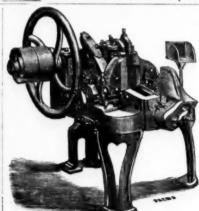
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Stronger than any other, whether of Foreign or of American make; always parallel and holding with a tighter "grip." The jaws are of convenient snape for the workman to get near his work equally well for fling or chipping, instead of the heavy, clumally formed jaws of the cast iron Single Screw Vises of the common "parallel" type.

Our Vise combines all the advantages of the "Peter Wright" Leg Vise, of strength and lightness, fastening to the floor and bench, and at the same time greatly superior to I; is a tways perfectly parallel at all the same time greatly superior to I; is a tways perfectly parallel at all the same time greatly superior to I; is a tways perfectly parallel at all the same time greatly superior to I; is a tways perfectly parallel at all Vises for three years from dute of manufacture stamped upon each. The Jaws are of best Tool Case Steel, welded on, file cut and properly hardened. The screws are forged of the best refined iron, and work in Solid cut thread boxes. The lower screw maintains the parallel position of the two jaws, by having exact motion with the upper working screw through the connecting chain which regulates it. The chain has no strain of the work upon it, and is therefore as durable as all the other parts.

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No. 2, Jaws 3½ in. x 1 in., Serews 1½ in. diameter, Lever 13 in. long. 97 00

No. 3, Jaws 3½ in. x 1½; in., Serews 1½ in. diameter, Lever 16 in., long. 10

No. 4, Jaws 6½ in. x 1½ in., Serews 1½ in. diameter, Lever 19 in. long. 00

opens 7½ in. 1½ in., Serews 1½ in. diameter, Lever 24 in. long. 00

No. 5, Jaws 1in. x 1½ in., Serews 1½ in. diameter, Lever 24 in. long. 2: 00

opens 3 in. no. a. Jaws 1 in. X 1 is in. Screws 1 is in. diameter, Lever 24 in. long opens 9 in.

No. 6. Jaws 8 in. x 1 is in. Screws 1 is in. diameter, Lever 26 in. long, opens 10 in

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PRICE,

The National Association of Stove Manufacturers.

Sixth Annual Meeting.

As announced in our last issue, the National Association of Stove Manufacturers held their sixth annual meeting in Troy, beginning on Wednesday last and continuing through two days. The meeting was called to order at 11 a. m., January 17th, by Mr. S. S. Jewett, presi-The following members and invited guests were present:

P. B. Acker, of Union Stove Works, New

S. H. Ransom, Joel R. Ransom, Albion Ran-som, of S. H. Ransom & Co., Albany. Wm. P. Abendroth, of Abendroth Bros, New

k.
Bradley, Pittsburgh.
seck Bussey, John O. Merriam, Chas. A.
Leod, of Bussey, McLeod & Cc., Troy.
H. Buck, of Buck Stove Co., St. Louis.
eo. C. Burdett, W. S. Smith, of Burdett

Smith & Co., Troy.

A. N. Patton, of Brooks & Patton, Colum us, O. C. H. Senseney, of Joseph Bell & Co., Wheel-

ing, W. Va. O. H. Bush, of Chamberlain & Co., Cincinnati. N. Brayer, H. Cribbin, of Co-operative Foun dry, Rochester. W. H. Tefft, of Detroit Stove Works, De

D. M. Thomas, of Detroit Iron & Brass Manu neturing Co., Detroit. Henry Lape, of Chicago Stove Works, Chi

Cago. Chas. Eddy, Geo. C. Baldwin, Jr., Aug. P. Corse, of Eddy, Corse & Co., Troy. N. L. Ely, of Ely & Ramsay, New York. G. F. Filley, of Excelsior Manufacturing Co.,

Louis.
Thos. Jones, of Foxel & Jones, Troy.
Joseph W. Fuller, John H. Warren, Geo. A.
Yells, Walter P. Warren, of Fuller, Warren &

Wells, Walter P. Warren, of Fuller, Warren & Co., Troy.
A. B. Fales, Troy.
L. H. Giles, of H. G. Giles & Son, Troy.
C. O. Greene, Troy.
George Elliot, of Highland Foundry Co., Boston.

ton.
John B. Herron, Pittsburgb.
A. S. Hubbell, H. S. Hubbell, of Hubbell A. S. Hubbell, H. S. Bussell, Bros., Buffalo. S. S. Jewett, Josiah Jewett, of Jewett & Root,

m. J. Keep, Troy G. Littlefield, of Littlefield Stove Mfg. Co.

Albany. Jeremiah Dwyer, of Michigan Stove Co., De C. Olhaber, Cincinnati.

N. Parlin, John Magee, of Magee Furnace S. T. Peckham, of J. S. & M. Peckham, Utica. G. H. Phillips, W. A. Clark, of G. H. Phillips

G. H. Phillips, W. A. Clark, of G. H. Phillips, & Co., Troy. J. B. Resor, of Wm. Resor & Co., Cincinnati. John F. Rathbone, Grange Sard, Jr., Edward Bowditch, of Rathbone, Sard & Co., Albany. Samuel W. Perry, of Swett, Quimby & Perry,

Troy.
Wm. T. Southard, Wm. H. Foster, of Southard, Robertson & Co., New York.
J. V. Vrooman, Jonas H. Clute, John Keycs
Paige, of Schenectady Stove Co.
Crawford Spear, of Jas. Spear & Co., Philadel-

Hill, Jr., of Union Stove Works, New Jordan L. Mott, of J. L. Mott Iron Works

Van Wormer & McGarvey, Albany. W. H. Whitehead, of Tibbals, Shirk & White , Erle, Pa. Pory A. Wood, of Wood, Bishop & Co., Ban-Me.

Henry A. wood, of troos,
gor, Me.
David Williams, publisher, James C. Bayles,
editor, The Iron Age and The Metal Worker.
Samuel H. Keep, of Wager Stove Co., Trov.
A. McVean, of Sill Stove Co., Rochester, N. Y.
N. A. Boynton, of Richardson, Boynton & Co.,
New York.

After the approval of the minutes of the last meeting as published. Mr. Jewett addressed the Association as follows:

THE PRESIDENT'S ADDRESS.

Gentlemen: In accordance with the provisions of our constitution, we are again gathered together to do what we can to promote the best interests of a trade probably without a peer in the ranks of manufacturing indus-

we are assembled in the city of Troy, a rep-We are assembled in the city of Troy, a representative city of our trade, for it contains within its limits and in its suburbs an unusual number of stove foundries, affording occupation to an immense number of operatives and employing capital almost without limit.

The representatives of this vast local industry have cordially invited us to meet with them here, in what may appropriately be styled "The home of the stove trade" and to review more

home of the stove trade," and to revive upon the head waters of the Hudson those intima-cies which originated upon its lower banks sev-

eral years ago.

As we now reflect with satisfaction upon the fact that this is our sixth annual meeting, and fact that this is our sixth annual meeting, and as we recall the various incidents in the history of our Association, we cannot fail to observe a remarkable resemblance between the present condition of the stove trade and the state of affairs which existed at the time of our organiaffairs which existed at the time of our organization. At that time the alarming condition of the trade prompted the idea of an organization and stimulated the efforts which resulted in its formation. Overproduction was then a distubing element; the necessary rivalry in producing new designs and improvements was the policy of enterprising firms; but by far the most powerful cause of evil was the absence of a mutual acquaintance between the manufaca mutual acquaintance between the manufac-turers and the loss of good feeling toward each turers and the loss of good feeling toward each other. It is no exaggeration to assert that the trade has suffered more injury from the cause just named than from all others combined. Utter strangers to each other, deeply interested in competing goods, could not be expected to act in harmony; it required acquaintance and association to develop good-will and cordial intercourse; to bring out the points of common interest to the whole fraternity; to understand them more thoroughly by united wisdom, and be ready to act simultaneously in matters of them more thoroughly by united wisdom, and be ready to act simultaneously in matters of vital importance. The Association was then founded, and with its career you are all quite familiar. It has guided us from low, unremunerative prices through a rapid advance, forced by the enhanced cost of all articles entering into our product, and also steadled us down the hill of decline, caused by the reaction in prices of raw materials.

To-day we look upon a scene similar to that which brought us into existence. Overproduction has steadily increased until it is now a very serious element in our calculations. The rivalry

serious element in our calculations. The rivalry in developing new ideas to captivate the publi never has been so intense; nor is there any prospect of its moderating until the produc-tion of stoves is only equal to or less than the demand for them.

demand for them.

There are, however, new sources of trouble which are well worth our attention. The de-

nd disputes arising from it.

In this connection I cannot forbear some ref-

In this connection I cannot forbear some reference to the low methods adopted by very many salesmen who are employed by honorable firms to represent their interests in the sample room or at the home of the customer. A manufacturer must take an honest pride in the product of his brain, and it is a pleasant duty for him to impress upon the minds of purchasers the particular points embraced in his wares. To the canness presention of such features strict he earnest presentation of such features, strict the earnest presentation of such features, strict honor and business integrity dictates a firm adherence, and discountenances the seeking of trade by misrepresentation of the grossest character. The goods made by every member of this Association have features strong enough to capture their fair share of patronage. More trade can be secured by honest statements than has ever been acquired by villifying the character of opponents and misrepresenting the facts about competitors and their wares. Let each member reflect upon this matter and Let each member reflect upon this matter and consider whether be has taken care to do his part in elevating the standard of commercial honor and keeping it free from the taint of exercicing

suspicion.

There have been other powerful causes at work to depress our trade. Although worthy of a passing notice, yet they were but temporary, and no matter how injurious may have been their influence, yet they are not likely to occur again for a term of years. I allude to the Centennial Exhibition and the presidential ampaign.

the Centennial Exhibition and the presidential campaign.

It was our privilege to meet at Philadelphia in June last, and enjoy the hospitality of our brethren in that vicinity. It was also our opportunity for visiting the Centennial Exhibition, which was then about complete. We inspected the goods produced by the skill of the world, and recognized their perfection. We admired all the surroundings and wondered at the remarkable success of a management capable of producing such marvelous results. It was a credit to all engaged in it; it was justly the pride of the nation. Nor do I, in my tumble sphere, venture to assert that its influence will be wholly injurious, for I have quite a contrary opinion; but it is my duty to mention a feature which exerted a temporary influence far from beneficial. The total number of paid admissions to the grounds was eight millions four thousand two hundred and seventy-four. Assuming that each admission eight millions four thousand two hundred and seventy-four. Assuming that each admission represents the modest sum of twelve dollars paid out for individual expenses, and we find one hundred millions of dollars employed in this unusual manner. The true sum was certainly far greater; but this amount diverted from the ordinary channels of trade, checked the power of the people to pay praying ability. the power of the people to pay previous obligations, and to again purchase the articles then in season. A restricted fall demand was the inevitable result, and even that was made still less for the stove trade by the moderate temperature which prevailed until quite recently.

temperature which prevailed until quite recently.

In every campaign where the presidency of the United States is the prize to be awarded to the victorious party, it has been noticed that the people devote so much time to political

the people devote so much time to political matters as to seriously interfere with every trade depending upon the fall season for the sale of their wares.

The recent campaign excited the proper amount of enthusiasm under which the election took place. Then followed an era of intense doubt concerning the result; the question of the safety of the Republic was discussed in the most prominent circles; citizens participally most prominent circles; citizens patriotically feared for the safety of their native land as they realized the crucial test to which the sys-

they realized the crucial test to which the system of the Union was then subjected.

Up to the present time wise counsel has prevailed; confidence has been restored, and every indication strengthens the belief that our only safety is to strictly adhere to the Constitution which has protected us during a hundred years. The Constitution of the United States was a wise compromise between the doctrine of state rights and the desire for a popular yote. It rights and the desire for a popular vote. It combines nearly all the elements of perma-nence; what it lacks we can safely add by mendment.

Under such an accumulation of unfavorable Under such an accumulation of uniavorable influences we may well wonder at the stability of the stove manufacturers who have encountered the storm and resisted its pressure so well.

One more remarkable feature in the fluctuations of trade harmonic and trade h

tions of trade has impressed itself firmly upon my mind, and I trust my good friends in the East will pardon me for introducing it here, and will recognize in it whatever of truth it mar contains.

may contain.

The records of the past often abound in salutary instruction for succeeding generations. In ancient history we read of the great cities where the business of those days was transacted, the established centers of commerce, where merchants were famous for the enterwhose merchants were famous for the enterise which brought into their coffers golprise which brought into their coffers gold from a distant land, and whose ships plowed all the waters of the known world. After an interval of time, with the decline of civilization in the East, their commercial power vanished completely. Then a Western power appeared to upraise the golden seepter, and maintain it for centuries. At last, she too experienced the withering blast of adversity, and her insignin of power disappeared forever. I find no instances power disappeared forever. I find no instances in the past of any recovery of a lost commerce. I find no instances There are no retrograde movements in the course of trade.

course of trade.
Such has been the tendency in remote ages, and in our day we do not look in vain for resemblances to it. In modern Europe similar mutations (not perhaps so general) also appear. Already the financisi and commercial influence of England has been seriously weakened by the decline in important branches of industry, wherein she was formerly supreme: industry, wherein she was formerly supreme but they have eluded her grasp and passed into the hands of a Western nation, without hope of

but they have eluded her grasp and passed into the bands of a Western nation, without hope of recovery.

Let us face the situation and so act that all nour own country, let us review an instance of a similar disturbance in a special trade. Some forty years ago the stove trade was all transacted in this vicinity. The foundries on the Hudson were a seat of empire; around its throne were annually congregated all who wanted their product, whether they were dealers in the South, North, East or West; from far and wide all gathered here to pour out their treasure in exchange for the goods that they could not procure elsewhere. With the progress of time the settlement of the country has continued, moving gradually Westward and carrying with it not only the civilization peculiar to agricultural life, but also the seeds of mechanical industry, which in our trade have been planted far and wide. Originally nurtured by the elements of location only, they have received a further stimulus from the rection of an unusual number of blast furnaces in all sections of the land, until the goods can be made and marketed in the West as cheapiy

livery of goods "to be paid for when sold" is a curious problem to consider. Many retailers have their floors largely stocked with such goods, in which they have no interest; their money is invested in other patterns on which they concentrate all their efforts; they know too well that the manufacturer of the articles "on sale" is in their power and must ultimately lose, either by reducing the price or sending the goods elsewhere. This point is not only suggested by the placing of samples, but by manufacturers sending ten, twenty and eventhirty stoves on this dangerous plan. A manufacturer cannot afford to place himself in such a position, unless he expects to meet the situation and gracefully yield to the demands and disputes arising from it. ward flight.

It would give me great pleasure to report to

It would give me great pleasure to report to you that the past year had been prosperous for the stove trade; but the record of the year does not permit me to do so.

It would be also gratifying to me and acceptable to all the fraternity could I point out a future glowing with immense profits, but the facts would not sustain or warrant the creation of any such defusive hope.

In all my remarks concerning our trade today, and in all that I have made hitherto, which I now reaffirm, it has been my aim to place be-

day, and in all that I have made hitherto, which I now reaffirm, it has been my aim to place before you the exact truth as Iar as it was in my power to do so. If there has been any fault, judging from the results, it exists in the fact that I have not been endowed with the power of an orator to impress the ideas firmly upon your minds.

of an orator to impress the ideas firmly upon your minds.

Perilous times are here, and we need all the wisdom that can be derived from our past experience to guide us safely in the future.

In closing my remarks about the outlook for the future I am led to believe that the trade of the whole country, in a wide, comprehensive sense, rests upon a better foundation than it has for some years. The financial storm is subsiding and the sky is becoming clear. Our currency (if let alone) will soon be exchangeable for gold on an equal basis. Prices of all commodities are aiready adjusted to that level, so that the reaction from the times of inflation is about complete. Henceforth the natural growth and

reaction from the times of inflation is about complete. Henceforth the natural growth and resources of the country will be developed without restraint.

Mr. John Walter, proprietor of the London Times, expresses himself as follows:

"In regard to the 'hard times,' he said England was suffering much the same as the United States, from industrial and commercial depression. In his estimation, the business troubles were much worse, however, upon the Continent, more especially in Germany. France. troutes were much worse, however, upon the Continent, more especially in Germany. France, always the lucky nation whose crops were good and whose people lived and thrived upon almost nothing, was the richest of them all; but America he found was not far behind. With her wonderful resources of coal and iron, and her manufacturing and serrouting resources. her manufacturing and agricultural resources, the United States would soon shake off their present commercial lethargy. In one way America had strangely reversed the natural order of things. Manufactures generally were order of things. Manufactures generally wers a result of agriculture, and people only came to towns after the agricultural interests had been fully developed. But here this was not true. With room for hundreds of millions in many of the states, the manufacturing element had been developed so far out of its proper proportion that the cry already went up of too many manufactories. Despite the enormous grain and vegetable products of the United States, their agricultural resources had only been touched, not worked."

THE BANKRUFT LAW.

It was a part of our duty at Philadelphia to consider the operations of this law, which was enacted to enforce and protect the rights of creditors and debtors impartially, but in actual

creditors and debtors impartially, but in actual practice was serving a purpose different from what was intended by the authors of it. It acwhat was intended by the authors of it. It actually opened a legal way for dishonest debtors to make traudulent settlements with unsuspecting creditors, under the cover of what is well known as "compromising." The remarks and discussions upon this subject appear in your published proceedings, and they are well worthy of careful attention. Since the action of this Association was aunounced I have taken great interest in watching the effect. In my only in thas been beneficial in a marked degreat interest in watching the effect. In my opinion it has been beneficial in a marked degree. I have no doubt that during the past seven months the number of compromises prosed to or accepted by stove manufacturers has been materially reduced, as compared with the corresponding interval last year, or as compared with the record of other trades. The satisfaction which we experience over our action is not however, confined to our part of satisfaction which we experience over our action is not, however, confined to our part of this trade. It is not considered beneficial by manufacturers only, but also by every bonest merchant, as appears in the following extract from a letter written to me by a retailer in the West:

West:

"Permit me to congratulate yourself and the Stove Association on the stand taken concerning compromises and bankrupts. The curse of the present system of settling with dishonest men results in serious detriment to honest dealers. I go for such honesty as Mr. Filley's."

We cannot dwell too long upon the evils of the compromise system, or take too high a position against the disposition to tamely submit to them. The strengest advected of the present

sition against the disposition to tamely submit to them. The strongest advocate of the prac-tice must inevitably base his arguments upon the idea that the unfortunate applicant is an honest man. Yet when goods are delivered to even an honest man, is it not an implied part of the terms of sale that the buyer shall de-vote his personal efforts and zeal to the disposal of the merchardise? Sales would rarely be made unless such an expectation existed. It surely cannot be a part of the bargain, that surely cannot be a part of the bargain, that upon receiving the articles the buyer shall calmly decline to execute that part of the contract, and boldly tell his creditors to get what they can out of the goods. Such an act is dishonest and may well be styled a breach of trust.

It is a profitable investment for any manufac turer to take a firm stand, now at this time, and resolve that henceforth and forever he will acresolve that henceforth and forever he will accept no compromise offers. An increase in losses during the present year will be more than repaid by the increased safety of mercantile transactions afterward. The indications now point to a very large number of embarrassments among a class of dealers formerly in good credit, but, meeting losses which have seriously diminished their resources, they have carefully concealed their condition, hoping to recover; but at last they too abandon that hope and lose their courage, incentives to labor which the customarry manipulations of the bankrupt law customary manipulations of the bankrupt law

customary manipulations of the bankrupt law render legally unnecessary.

Let us face the situation and so act that all merchants who accept from us what amounts to a fiduciary trust shall be held responsible for their actions. It will not then be said of us as is clearly stated in the following extract from an article written by Lewis L. Delafield in the December number of the Pan Monthly:

"It is one of the consequences of the loss of a high standard of public morals that crimes have lost their names as well as their punish-

same article:
"Merchants have learned that honesty is not encouraged by easy compromises, or releases and extensions impudently asked and indifferently granted. They have found that the honest suffer when the fraudulent escape, and that the upright tradesman who pays his debt is silways undersold by the rogue who buys dear on credit to actl cheap for eash, without any intention of paying, and relying upon the ill-judged leniency of creditors to discharge him when bunkrupt, and launch him again on a new career of frand."

Permit me here to state that, pursuant to your instructions, I have caused suitable petitions to be prepared and transmitted to the Senate and House of Representatives praying for the repeal of the bankrupt law.

The secretary has also mailed a copy of our June proceedings to the Secretary of the National Board of Trade, at the same time advising him of our action on this important matter.

REGISTER OF NAMES OF STOVES, ETC.

REGISTER OF NAMES OF STOVES, ETC. The secretary has completed the register of names of stoves, ranges and furnaces author-ized at the June meeting; copies of it have been mailed to all the members of the Associabeen mailed to all the members of the Associa-tion who have paid their assessments. Three hundred copies are now on hand to supply other members of such parties as the Associa-tions may direct. According to our anticipa-tions the work has been expensive; the trade however ought to derive permanent benefit from the effort. In the future, the mainte-nance of the system will require a revision and republication of the work at stated intervals, perhaps every five years.

rhaps every five years.

The selection of a name for the new stove is a matter of great interest to the manufacturer, whose aim should be to choose one that would give character to the article instead of detracting from it. A careful reader will find in this name-book a large number of names which convey no impression of character, and some that are very smaller. that are very amusing.

OUR NOMENCLATURE

needs revision as far as practicable, primarily because many of the names by which the de-signs or improvements of the manufacturers are known are frequently repeated, with only some slight qualification to distinguish them; and, secondly, with a view to doing away with names that are meaningless, inappropriate, grotesque or utterly absurd. Many of the names in use are exceedingly suggestive grotesque or utterly absurd. Many of the names in use are exceedingly suggestive of a happy-go-lucky way of doing business, and many others are at variance with the serious and oftentimes glowing manner in which the merits of the articles for which they stand are set forth to the public. A glance at the register compiled by the secretary of the Association shows that the manufacturers have drewn upon various departments. ry of the Association shows that the manufacturers have drawn upon various departments of human knowledge for their names, or have borrowed from sources which would seem accessible to them alone. It is to be prerumed that our more lofty and high-toned manufacturers could only be content to draw upon royalty for their titles, for we have a King, a Queen an Emperor, an Empress, a Monarch, a Czar, a Crowned Prince and an Autocrat; and we have, too a Prince and a Princess; while one manufacturer was led to consider a Little Queen better than no over at all. The celegistic inclined facturer was led to consider a Little Queen better than no queen at all. The celestially-inclined have levied tribute on astronomy, and make us familiar with their Rising Sun, and Biazing Star and Silver Moon; others less pretentious appear to be comfortable with a Meteor, a Comet, or even an Asteroid; but one firm could not consent to dwell upon this planet of ours without the sublime benefits of a full Constellation. Then there are those who, we must suppose, feed on ambrosial food; and to them we are indebted for the Arbutus, the Aster, the Daisy, the Expantine, the Myrtle, the Rose and the feed on ambrosial food; and to them we are indebted for the Arbutus, the Aster, the Daisy, the Eglantine, the Myrtle, the Rose and the Wild Flower; and we contemplate with some awe the grasping disposition which could only rest content with an entire Bouquet. Names are borrowed from the mythologies, and as a result we can boast of Jupiter, Venus, Mercury, Pluto, Juno and Diana; while with the display of gems we are fairly bewildered, being enriched by Diamond, Pearl, Emerald, Opal, Amythyst, Garnet, Ruby, Topaz and Coral, which in turn are supplemented by the Crown Jewel and the Crown Diamond. In a sentimental and social way we have Darling and Ladies' Darling. My Friend and My Mutual Friend, and Belles, Coquettes and a gennine Flirt. Gold is as freely employed as if this was the auriferous age instead of the age of iron; and we have it, from a Gold Mine pure and simple to that thinnest kind of gilt veneering not infrequently implied in the term "golden." Then there is the "Big Bonanza," with its gold and silver products, and by way of humorous antithesis we are supplied with a Greenback and a Legal Tender. Bismarck, Grant, General Scott, Dr. Franklin and others are immortalized; and great altitudes like Alps, Ætina, Andes and Vesuvius tower aloft in the geographical department of our cost iron literature. The forest is taxed for the names we use; and although manufacturers as a class are not given to superlatives, some of them label their goods as Peerless, Perfection, Priceless, Seraphic, though manufacturers as a class are not given to superlatives, some of them label their goods as Peerless, Perfection, Priceless, Seraphic, Grand, All Right and Bang-up, all of which go to show the sbrinking modesty of the members of this Association. We have intimate relations with such spiritual creations as Ariel and Undine; and, as you all know, our particular Premiers continue to rise from their traditional Phenixes continue to rise from their traditional ashes with most astonishing case. Every well-regulated family is supposed to have a little Volcano of its own; but there are enterprising Volcano of its own; but there are enterprising stove manufacturers who are eager to put another into each household in the land, at the lowest prices, and without the slightest regard to consequences. In a musical way we have a Duet and a Quartette, but one devotee of the divine art could not see his way clear to get along with anything less than a complete Opera. Nobody will object to the Editor so long as he does not write into celebrity the wares of his contemporaries; and no serious objections can Nobody will object to the Editor so long as he does not write into celebrity the wares of his contemporaries; and no serious objections can be urged against the Charmer, unless she should turn out to be a malicious siren bent upon our destruction. Common Sense is not entirely ignored, having a place, in name at least, in our patchwork of a nomenclature; but I fail to see the propriety of a Torrid Egg. I can only regard a Fire Bug as suggestive of heartless incendiarism, and a Fire Fly can only hint at a faint flicker of light without a spark of fire. A Fancy Dwarf, a Hotel Alligator, an Improved Alligator, an Improved Volcano, and names like these, must be classed with the incredibles, and there are even those which are more absurd than I have given, but I might weary your patience with a a recapitulation of them, and I leave you to prosecute further investigation for yourselves, and to correct, as far as you may deem proper, the tendency to employ ludicrous, grotesque, vulgar or high-sounding names with which to designate your manufactures.

making any effort to obtain redress, while his Edglish cousin will enforce the least violation of his rights with the utmost rigor."

Let it rather be our aim to deserve the following encomium, which is taken from the same article:

"Merchants have learned that honesty is not encouraged by easy compromises, or releases monkeys figure ground the burner whose claims." a drawing-room in which a lot of badly drawn monkeys figure around the burner whose claims to confidence are supposed to be set forth. The scene is intended to represent the more industrious of the congregation of monkeys engaged in using the cat's paw with which to pull the chestnuts of the fable out of the fire. Unfortunately for the intended humer, and the truth of history, the chestnuts are deposited on the floor-covering beneath the burner whose windows glow with red paint, and are not anywhere near the fire. Considered as an advertisement of artistic stupidity the picture is all right, but for any other purpose I must regard it as a failure. I recall a little chromo which represents a race track, over which the victorious burner is borne by attenuated legs in 2°14½. Several of the contestants are left some distance behind; others are distanced, and the victor waves aloft a banner with one hand, while the thumb and fingers of the other are plied contemptuously against such a remote semblance of a nose as the artist could safely bestow upon the manufacturer's product. An enterprising patriot has planted his burner in the midst of Arctic snows and beneath the stars and stripes. The Esquimaux are summarily divesting themselves of their furs; the white mountsins have been thrown into a comfortable distance, and a more than tropical luxuriance is imparted to the scene by the red and yellow tints of the chromo. A circular of moderate pictorial pretensions sets forth the advantages of the ash-pit, on account of the absence of which Miss Murphy is putting on her gloves and about to take her departure, leaving an innocent family desolate and inconsolable. I think I have in my possession a proof copy of a lithograph representing a parlor scene in which everything is made radiant by the light emitted from the burner in the center of the room. A red belted flon king and his queen sit enthroned, and drink to the health of the general company. A fat porker, arrayed in clerical garb, is, as I interpret it, unning in the AMENDMENTS TO THE CONSTITUTION.

In the original framing of our constitution and by-laws it was not to be expected that they could be absolutely free from blemish, and it is not surprising that in the actual experience of the organization new points have suggested ad-

the organization new points have suggested additional provisions.

Article IV of our Constitution provides for two meetings during the year. The amount of business transacted at our sessions does not warrant two regular meetings. It has been thought by many of our number that the social influence of repeated reunions was an element of strength to us, and I have expressed that as my opinion heretofore. But I am now constrained to believe that the influence of this Association. strength to us, and I have expressed that as my opinion heretofore. But I am now constrained to believe that the influence of this Association will be fully maintained by appointing one regular time for an annual meeting. Members will theu center upon it sll their interest and sttention, and more will make a determined effort to meet with us regularly. The number of days that would be devoted to such a session would naturally be increased, and so gratify our esteemed friend, Mr. Giles F. Filley, who writes as follows:

as follows:
"It seems to me it would be a good plan to have our annual or semi-annual meetings ex-tended to three days, instead of two or three. The business could be attended to without the

The business could be attended to without the hurry and confusion that has prevailed in our meetings heretofore. It would also enable the members to spend more time in social intercourse with each other."

It should be remembered that in case an emergency arises of vital importance to the Association that the constitution delegates to the Executive Committee the power to call meetings whenever they deem it advisable.

Section 5 of our by-laws provides for an assessment to meet current expenses, but places no restriction upon the amount to be paid during any one year. While it has been our custom to tix the amount of assessments at our

no restriction upon the amount to be paid during any one year. While it has been our custom to fix the amount of assessments at our winter meetings, and although the demand for money has so far been extremely moderate, yet the by-laws place the power solely in the hands of the committee without a limit. I would therefore suggest an amendment placing some limit to the amount that may be assessed in any one year, only to be exceeded in matter. in any one year, only to be exceeded in matters so important as to secure the unanimous vote of the members present at any regular or special meeting of the Association. It may be that such action would remove an objection that might justly deter some from joining our Association.

OBITUARIES.

Since our last meeting two of our number have been removed by death from this busy life, and we trust they have been received into a better world beyond the grave.

CHAS. B. REDFIELD, ALBANY, N. Y. I am indebted to Mr. John H. Redfield, of Philadelphia, for the following eloquent record of his brother's eventful life: Charles B. Redfield was the second son of. William C. Redfield, well known for his inves-

William C. Redfield, well known for his investigations and discoveries in meteorological science, which laid the foundation of our present system of signal service weather reports. He was born at Cromwell, Conn., Nov. 18, 1818, and removed to New York city about 1825, where his father engaged in the business of steam transportation upon the Hurison River. At the age of 16 he found employment with a mercantile house in trade with Buenos Ayres, and subsequently increased his business experience by several years' employment with and subsequently increased his business experience by several years' employment with Thomas Dean, an importer of English muslins, and with Richards & Cronkhite, agents for manufacturers of American cotton fabrics.

About 1845 he removed to Albany, became the chief shipping clerk in the office of the Swiftsure line of freight barges, which his

father had been mainly instrumental in establishing, and a year or two after became one of the principal managers of the line. At that time nearly all the carrying trade between New York and the West was done upon the Hudson River, far the larger part of it being transferred at Albany to and from the boats running upon the Eric Canal. The railroads had as yet not grasped at heavy transportation, nor attempted to control its direction. Hence the position to which Mr. Redifield was now called was one requiring the most untiring industry and most constant diligence, often demanding for months together the labor of 16 or 18 hours per day. Diligently and faithfully for about 20 years he continued to perform those labors, accompanied with heavy financial responsibilities, always faithfully met. At the beginning of 1867 the depression in business which had followed the war of the rebellion, together with the fact that the residence was a possible to attend—he had accepted to attend—he had scepted at the Office reluctantly, and with grave doubts as to his fitness for the position. He had boped to be allowed to retire at the end of the first year, but in deference to the wish of the Association he had accepted a re-election, with the understanding that it was for another year only. His time was so fully occupied with important duties that he would much rather retire from the presidency.

General Rathbone, on behalf of the committee, begged that Mr. Jewett would reconsider his decision. These are perflous times, and Mr. Jewett's large experience and wise the war of the rebellion, together with the fact that the railroads had obtained entire control that the railroads had obtained entire control of the carrying trade (their mutual competition carrying prices below the possibility of profit), led Mr. Redfield to avail himself of a favorable opportunity to sell out his interest, and he reluctantly abandoned a business which his father had founded 40 years before, and removed his family to Pittsfield, Mass.

Soon after he became associated with the gentlemen who formed the Treadwell Stove Company, and became the secretary and active managing agent of that company. But the times

18

pany, and became the secretary and active managing agent of that company. But the times were not then propitious for new enterprises. Various commercial disasters and insufficient capital prevented the success of the undertaking, and is spite of the merits of the company's manufacture and the industry of its managers, the company was compelled to close up its business in 1875.

The labors and cares which Mr. Redfield had sustained so many years with a cheerfulness and courage which were characteristic, no doubt undermined his constitution. About the

doubt undermined his constitution. About the

doubt undermined his constitution. About the 20th of August he was attacked by a disease of the liver, which at first seemed to yield to treatment, but only partially. Hoping to benefit by change of air, he was taken to Kenuebunk, Maine. Soon after his arrival there the symptoms became alarming. He sank rapidly, and died on the 29th of September, 1876, leaving a widow and six children to mourn his loss.

I might also speak of his sunuy, bright, cheerful and loving, hopeful (perhaps too hopeful) temperament; of his benefactions, private and public; of his usefulness in church and town affairs, especially in the public schools of Pittsfield, in which he was an active, epergelic trustee—and of the firm religious principle which controlled him through life and sustained him in death. tained him in death.

MICHAEL M'GARVEY, ALBANY, N. Y.

MICHAEL M'GARVEY, ALBANY, N. Y.

The firm of Van Wormer & McGarvey was formed in 1847, and, after a prosperous and honorable record, was only dissolved by death. The ties which existed between the members of this firm were peculiarly strong. His partner, in a letter to me, writes: "Personally, I have to say that, during the nearly thirty years' association as partners there never has been a personal difference between us."

Originally a son of toil, possessing no capital other than his own talents, we find him at an early age active in commercial life, steadily advancing in business means and power, and throughout displaying that energy and integrity which is characteristic of a self-made man. His was a proud record, and he loved to refer to it. He never forgot his early days. Nor did he in his great prosperity fall to remember his early associates. He was unostentatious in his liberal charities; he dignified private life, and also stood before the business world conspicuous for his ability and his high sense of commercial honor.

With these few remarks which it has been my

mercial honor.

With these few remarks which it has been my with these few remarks which it has been my privilege to lay before you, and which are the last that I shall have the pleasure of preparing for the consideration of our trade, I desire to express to you my sincere thanks for the uniform courtesy which has been extended toward me. I also desire to assure you that I can never forget the pleasure which I have experienced at our meetings, and hope to enjoy again and again in the future.

Mr. Eddy, (N. Y.)-" It is my duty and privilege to welcome the National Association of Stove Manufacturers to the city of Trov. The attendance is unexpectedly large and affords us much gratification, especially in consideration of the snow blockade and the severity of the winter weather. In the welcome which we extend to you as manufacturers, our citizens and authorities heartily join. The place of meeting has, we think, been well chosen. You return to the old home of the stove trade, as children return to the parental homestead. Many of you, especially those from the West, have outgrown the associations of the trade's early life, but you are none the less welcome, and we trust your visit will be none the less

"We are now suffering an extreme and long protracted depression in our business. This is believed by some to arise from our inability as manufacturers to follow the dietates of a wise business policy, and that when we can assert bur rights and manage our own business, we shall find relief from many of the evils dealers the capital to do business on. A little which now affect us. Some of us have taken help was well enough, but this might be carried demands and verations requirements of the la- sons in the retail stove trade without a dollar bor unions. Of these I can only say, God bless of capital of their own. It was astonishing them, I hope they will stand firm until they have secured for us the independence for which get unlimited credit; and he had even heard they are struggling."

The election of officers for the ensuing year being next in order, the chair, as directed by vote of the Association, appointed a committee consisting of Messrs. Rathbone, Fuller, Mott, Tefft and Filley, to nominate candidates.

During the deliberations of this committee. a motion was adopted inviting the Mayor of Troy to a seat on the floor during the session of the Association.

Mr. Sard moved that a committee of five be appointed to consider and report upon the several important suggestions and recommendations of the president's address. The chair founder for many years, and had watched the appointed Messrs. Sard, Whitchead, Burdett, growth of the credit system with alarm. He Resor and Hill

The committee on nominations, having concluded their deliberations, presented the fol- of their debts, and considered the trade delowing names, the ticket being a renomination of all the officers of 1876:

President-8. S. Jewett.

Vice-Presidents-John F. Rathbone, A. E. Chamberlain.

Treasurer-A. Bradley.

Secretary-Josiah Jewett.

Roard of Managers.-Charles Eddy, J. L. Mott, W. H. Whitehouse, Isaac A. Sheppard,

Mr. Jewett expressed his thanks for the com-

and Mr. Jewett's large experience and wise judgment are needed to guide the Association for another year at least. He had done much to strengthen the Association, and had filled the office with great ability. They all knew the claims which his large private interests made upon his time, but the best of the world's work is done by busy men. After again beg-ging the president to withdraw his objection General Rathbone called for a rising vote, which, it is needless to say, was unanimous.

Thus urged, Mr. Jewett withdrew his object tion, and his consent to receive the nomination was received with great enthusiasm.

There being no opposition ticket the secre tary was directed to cast a single ballot for the Association, and the officers re-nominated by the ommittee were declared elected.

Mr. W. F. Warren invited the Association to meet the Troy manufacturers at 3 p. m. at the Troy Club House. The invitation was accepted.

On motion the Detroit Iron and Brass Manufacturing Company and the Schenectady Stove Company were elected to membership.

Mr. Bradley, treasurer, presented a financial eport for the year, which was accepted.

Mr. J. Jewett, secretary, asked to be instructed what disposition to make of the "Name Book." Copies had been sent to all members in good standing, but some 350 copies remained for distribution or sale. Upon motion of Mr. Tefft he was instructed to sell the balance at \$2 per copy.

Letters expressing regret at inability to attend the meeting were read from A. E. Chamber-lain, Cincinnati, and I. A. Sheppard, Philadelphia, and spread upon the minutes.

General Rathbone said : "There is a suburb of Troy, about six miles down the river, of which some of you may have heard. It is an oldfashioned place, but has some objects of local interests. Just now the most remarkable of these is the Legislature. In summer we delight to show our visitors the Cemetery, also the Penitentiary. Some people in Albany feel an interest in this Association, and have delegated me to ask you to meet them at dinner at the Delevan at 7 p. m. to-morrow (Thursday).' The invitation was accepted with thanks.

Mr. Tefft reminded the Association that De troit had for two years been promised a summer visit, and asked that the next meeting be held there in June. A motion to that effect was unanimously carried.

Mr. Eddy offered the following:

Resolved, That this Association establish a bureau, exclusively for the benefit of its mem-bers, to determine credits in the manner em-ployed by the commercial agencies.

He said the trade had suffered by incorrect reports made by these agencies, and thought the Association could well afford to take such

The resolution was adopted, and the chair appointed the following committee to report a practicable scheme: Messrs. Eddy, Remsen. Tefft and Filley. The president was made a member ex officio,

Mr. Merriam considered the subject of credits one of the most important which could be brought before the Association. He had had a somewhat extensive experience in both giving and receiving credit, and if he had the power he would abolish all laws relating to the collec-tion of debts. If a manufacturer was fool enough to part with his goods without either money or security, he should take his own chances of collecting. There was too much effort to sell, and credits should be more carefully scruticized than they are. It is too much to ask of manufacturers that they shall furnish this stand, in opposition to the unreasonable a great deal too far. There are plenty of perhow so many irresponsible scalawags could manufacturers say that a man who had burst up and failed was a safer man to sell to than one that hadn't. When the stove trade was prosperous, it was on a cash basis. Gradually they had been drawn into giving 30, 60 and 90 days, and then four months; now it is sometimes 12 and 18 months. Some even went so far as to deliver goods to be paid for when sold, without date. He did not know that a credit bureau was the best way to cure the evil, but he hoped that some decided action would be taken by the Association.

General Rathbone said he had been a stove gave many interesting examples of the expedients of dishonest dealers to avoid the payment moralized. Proceedings in bankruptcy were useless, and before beginning them a creditor had better charge the account to profit and loss. It is hard enough to get the cost of making and selling our stoves, without furnishing the capital which enables dishonest bankrupts to continue in business to the disadvantage of their honest neighbors. As merchants we are willing to take the risks of business and all the meet the fact that a man can, if he will, cheat pliment of a renomination, but begged that he us out of what he owes us, it is obvious that

protection. For one, he was tired of the struggle, and suggested the appointment of a com mittee to report an easy and safe way in which a stove manufacturer could get out of the busiress and realize upon such valuable assets a old flasks, old patterns, &c.

Mr. Spear spoke at length to the same effect. Mr. Merriam explained the difference between theory and practice in this matter of selling on long credit. All manufacturers realize how foolish it is, but they are subject to influences that often lead them to do unwise things. The small houses must follow the lead of the large ones, and without the help of the latter reform was impossible. There is too much effort on the part of some of these large houses to be extra cmart-to overreach everybody else; but they would do well to remember that no one was so smart that all the rest would not be just as smart as he in a very short time.

Mr. Hill thought the question of credit one of the most important that could be brought before the Association. Trade was small, production large and the future dark, and he would be glad of anything that would tend to bring the trade back to a cash basis.

Mr. Sard said the Association had talked this matter over time and again, and had repeatedy resolved to remedy the abuses of the trade. As Mr. Eddy had said, they lacked independence enough to follow their convictions. had a word to say in favor of travelers. They follow the instructions given them, and are blamed for many things for which those who send them out are responsible.

Mr. Olhaber said this discussion reminded him of an anecdote: A friend of President Lincoln invented a plan of keeping squirrels from eating corn, and wanted to patent it. He would not tell what it was, however, until he found it impossible to obtain a patent without describing the invention. He had noticed that the squirrels always ate the outside rows first; and his system was to so plant the field that there should be no outside rows. He thought that good times would put a stop to the exist ing troubles, and that until they came it would be as difficult to devise a remedy as to plant a field without outside rows.

Mr. S. S. Jewett told an amusing anecdote Mr. Sidney Shepard, of Buffalo, once wanted a good cow, and asked a German customer, Croninsberg by name, living about ten miles out, to find him one. The German undertook the task with great zeal. He found a great many good cows and some extraordinary ones, but always wanted something still better. At last he found another German who had a cow to sell, which he praised very highly. While they were talking, the owner's wife came out and be gan to cry bitterly, bewalling the prospect of losing so valuable a cow, which gave such floods of milk-all cream. This satisfied Mr. Croninsberg that he had at last found the cow for Mr. Shepard. He did not dare to risk driving her in, so he put her on a sleigh and rode her in in state. Mr. Shepard was much pleased and took her home, Some days after, Cro ninsberg inquired, "How about dot gows, Mr. "Oh, she's all right as a cow," said Mr. Shepard, "but she don't give any milk." Croninsberg was much troubled, and determined to find out what the woman had cried about. So he went to see her, and on inquiring the reason of her great grief, received the reply : " Vell, Mr. Croninsberg, ve must do somedings to sell dot gows." So it is with the stove manufacturers. They must do something to sell their stoves, and what they do is very

apt to degenerate into abuses. Mr. Whitehead said that the stove question resolved itself into two problems-converting pig iron into stoves, and converting the stoves into money to buy plg iron. He thought that if principals would give more personal attention to selling, and delegate less authority to employes, it would be better for the interests of the trade. If this was impracticable, those who do the selling should be in some way interested in the profits; at least they should be intelligently informed of the cost of the goods they sell. Stove travelers are a very good class of mep, but if we send them out with instructions to sell to the best advantage they can, and give them no information as to the value of the goods, we have only ourselves to blame if they

get us into difficulty. The Association then adjourned until 10.30 a. m. Thursday.

THE COLLATION.

At 3 p. m. the members and guests of the Association assembled in the pleasant rooms of the Troy Club, and were hospitably entertained with an elegant collation. Toasts were drunk and speeches made, and the company passed several very pleasant hours in informal social

The proceedings of Thursday's meeting, with some account of the banquet at the Delavan House, Albany, in the evening, will be given in our next issue.

At the annual meeting of the American Microscopical Society, of the city of New York, held Tuesday evening, Jan. 9, 1877, the following officers were elected for the ensuing year President, John B. Rich, M. D., 35 East Tenth street, N. Y.; vice-president, Wm. H. Atkinson, M. D., 41 East Ninth street, N. Y.; secre tary, O. G. Mason, Bellevue Hospital, N. Y. treasurer, T. d'Oremieulx, 7 Winthrop Place, N. Y.; curator, John Frey, Bellevue Hospital,

An idea is gaining ground with aeronauts that the solution of the polar problem now rests with them. Captain Cheyne, a retired British naval officer, has volunteered to conduct a balloon party over the 400 miles or thereabout which have not yet been traversed, and the project finds a warm supporter in a Mr. contingencies of trade, but when we have to Coxwell, who deems such an expedition quite feasible. The only trouble in the mind of the latter seems to be the supply of gas in the might be considered not a candidate. Origi- we must take vigorous measures for our own higher latitudes. This, however, he thinks may

be gotten over by the use of fire balloons. He ommends the use of "very large Montgolflers," in which it would be possible to stow away a couple of sledges with dogs, and boats fit for contention with a polar sea as a forlorn hope." Four hundred miles, at the average rate of atmospheric speed, would not, in his opinion, occupy 24 hours. Mr. Coxwell's plan is well calculated to startle the uninitiated in aerostatics.

Scotch Pig Iron.

In their annual review Messrs. William Colvin & Co. suy:

At this time last year the market was bouyant under the influence of a speculative feeling, engendered by sanguine views regarding the prospects for the coming spring. The price on January I was 64/6, and the advance culminated on the 11th of that month, when 66/ was freely paid for warrants. From this point, the highest of the year, there was a gradual and persistent decline, and, as the farther the season advanced, the foreign demand proved the more disappointing, we reached almost the minimum value for the year without any rally of importance—the price on July 11 being 56/. The market remained very inanimate during the autumn months, the variations in price being from 55/9 to 57/9. In November, however, the idea began to gain ground that the trade had passed through the worst of the depression, more disposition was shown to hold iron; and by the end of that month the price reached 60/, and has since then fluctuated betwixt that At this time last year the market was bouy and by the end of that month the price reached 60/, and has since then fluctuated betwixt that figure and 57/9. The production has been well maintained in the face of low and unrenumerative prices, and some of the frommasters have thought it better policy to stock their surplus iron and wait for better times than curtail their make and thereby enhance the cost of production. The shipments show a marked falling off, and are smaller, with the exception of 1874, than any year since 1852. The depression in the iron trade has been general over the whole world, and the make has been curtailed and stocks reduced in almost every quarter. This state of matters abroad will bring Scotch iron into prominent notice as soon as trade begins to acquire its accustomed volume. The same firm give the following useful

Comparative Statement.

Comparative Statement.

Annual production	1874.	1975.	1876.
	806,000	1,050,000	1,103,000
Foreign shipments	296,803	368,453	868,572
Coastwise	166,104	174,056	166,190
the year	462,907	549,509	469,942
	317,000	360,000	370,660
	96,000	170,000	363,000
Av. no. of furnaces in blast. Fur'ces in blast Dec. 31	96 121	117	116
Av. price for the year	87/6	65/9	58/6
Price Dec. 31	76/	64/6	58/
Bank rt. of dis. Dec. 31. Make of malicable iron Av. price of bars for the	180,000	196,000	230,000
me to beree or owner you amo	-		terms when a

Messrs. James Watson & Co.'s annual report s as under:

The expectation of a revival in trade, which marked the close of 1875, has not been realized during the past year. Local consumption in both foundries and mallcable works has increased, but the shipping demand has been small, and the returns show a heavy decrease. The market opened on the 4th of January at 64.9, but quickly advanced, until a week later 66.6 was attained, being the highest price of the year. From this figure the market, with minor fluctuations, gradually receded until on the 25th of August 55.9, the lowest point of the year, was touched. For a short time the market was steady about this price, but toward the end of September extensive buying commenced, which, supported by advances in makers' iron, sent warrants to 60 / on the 23d of November. The latter figure, however, was not maintained, and the tone has since been quiet, closing Dec. 29 with buyers at 57.9, cash. The average price for the year has been 58.6. During the year there have been produced 1,103,000 tons, by an average of 116 furnaces, being an increase over 1875 of 58,000 tons. As will be seen, this increase has been gained with one furnace less in blast, and is the result. 1,103,000 tous, by an average of 116 furnaces, being an increase over 1875 of 58,000 tons. As will be seen, this increase has been gained with one furnace less in blast, and is the result of improved furnaces, and the steady manner in which the miners have wrought. Wages have averaged about 4/6 per day. There have been shipped foreign 303,762 tons, against 383,453 tons in 1875 and 296,803 tons in 1874, of which France bas taken 28,722 tons, against 32,927 tons in 1875 and 25,803 tons in 1874; Germany, Austria and Holland have taken 162,547 tons, against 185,269 tons in 1875 and 130,983 tons in 1874; Belgium, Denmark, Sweden and Norway have taken 24,179 tons, against 31,887 tons in 1875, and 32,819 tons in 1874; Russia has taken 14,626 tons, against 23,435 tons in 1875 and 23,205 tons in 1874; Spain and Portugal have taken 12,108 tons, against 12,588 tons in 1875 and 28,305 tons in 1874; Spain shad Portugal have taken 1874; United States has taken 20,748 tons, against 44,107 tons in 1875 and 30,467 tons in 1874; British America has taken 20,488 tons, against 30,384 tons in 1875. Each tons in 1875 and 30,467 tons in 1874; British America has taken 20,488 tons, against 30,384 tons in 1875 and 20,984 tons in 1874; East Indies, China, Australia, South America, &c., have taken 10,389 tons, against 22,955 tons in 1875 and 16,227 tons in 1874. The falling off in exports has principally been in foreign shipments. There has been consumed locally 370,000 tons Scotch and 285,000 in foreign shipments. There has been con-sumed locally 370,000 tons Scotch and 285,000 tons English pig iron, being an increase in the former of 10,000 tons and in the latter of 65,000 tons; of this foundries have taken 195,000 tons Scotch and 200,000 tons English, as against 205,000 tons Scotch and 154,000 tons English in 225,009 tons Scotch and 154,000 tons English in 1875; malleable works have taken 175,000 tons Scotch and 85,000 tons English, as against 155,000 tons Scotch and 66,000 tons English in 1875, showing a total increase of 36,000 tons for foundries and 39,000 tons for malleable works. The quantity of malicable iron produced being 230,000 as compared with 196,000 tons in 1875. As will be noted, the increase in the consumption consists largely of English iron. The shipbuilding trade has been quiet during the past year, but shows some signs of improvement; while the number of vessels now building is about the same as last year, the gross tonnage is 20,000 tons more. There were built in 1876 about 243 iron vessels of about 200,990 tons, against 263 of 231,662 tons in 1875, and 204 of 264,010 tons in 1874. And there are now building 146 iron vessels of about 152,745 tons, against 144 of 132,280 tons in 1875, and 170 of 182,443 tons in 1874. The following are the prices now current for No. I shipping brands, compared with those ruling at this date last year: The quantity of malicable iron produced being

	1876.	- 1
Gartsherrie	65/	
Coltness	70/	
Sammerlee	64/	
Calder	65/6	
Langloan	66/	
Carnbroe	60/	
Shotts	65/	
Carron	72/6	¥
Clyde	59/6	
Govan	59/	
Monkland	59/	
Glengarnock	63/6	-
Eglinton		
Dalmellington	59/6	
Kinneil	59/	
Almond	67/6	

Messrs. Watson & Co. append statistics. from which we condense the following

	1873.	1874.	1875.	1876.	1877.
Stock January 1 Shipments	612m	463m	543m	170m 470m	363m
Make Furnaces in blast Jan- uary 1	993m	806m	1050m	1103m	116
Rail deliveries Consump, in Scotland.	81m 378m	50m 817m	73m 360m	70m 370m	110
Average prices Furnaces in blast	119	87/6 96 6/6	65/9 117 5/	58/6 116	****
Miners' wages Bank of England rate of discount	8/6	3%	336	4/6	P ct.

Messrs. Swan give a handy table, showing production, consumption, exports and stocks, from Dec. 25, 1875, to Dec. 25, 1876, which they say is published by authority of the committee of the Glasgow Association of Iron Merchants and Brokers, thus:

	1876.	1875.	187	76.
	Tons.	Tons.	Inc.	Dec.
Production. From returns from the makers	1,103,000	1,050,000	53,000	
Consumption. In founders In malleable works.	195,000 175,000	205,000 155,000		
(Quantity of bar lron made: 1876, 230,000; 1875, 196,000)	870,000	360,000	10,000	
Exports. Foreign Coastwise	803,752 166,190	368,453 174,056		
By rail to England about	70,058	73,491		
045-7-	540,000	616,000		76,000
Stocks. In Connal & Co.'s stores at Glasgow. At makers' works	107,798	63,299		
from returns re- ceived from them.	255,202	106,701		
	363,000	170,000	193,000	

American Machinery in England .-Mr. W. H. Bailey, in a communication to the Manchester Examiner, says: "The Americans sell machinery better than we in England do. If they make a good tool or implement they introduce it with great ability to the man who wants or is likely to want it. A few years ago it was considered infra dig. for a large engineering firm to advertise or publish circulars, and it has been said of a late firm of this city that orders were only received on Wednesdays from 11 to 1. When the Americans have a good thing to sell they let everybody know it; they have their machine merchants, and devote far more attention than we do to the discovery of a customer. The books of their mechanical tool makers are wonderful productions, and their catalogue literature I have not seen at all equaled by the tool makers of this country. Allow me to give one illustration of the advantages the Americans derive from their system of advertising. I know a man near Oldham who will make a small hand drilling machine for £5, and who sells a few occasionally. The same thing, only very much lighter, is made in the United States; it comes here heralded by an illustrated circular, a man is appointed who earns a living by selling such things, and in consequence of superior commercial enterprise the American one sells at \$6, 10/. The American tools which are being sold in this country are dear; some of them are very good and many are worthless scrap, but all dear, and yet they sell well. It has filled me with astonishment to see lathes, drilling machines, chucks, slide rests and other goods command high prices, simply because the Americans take the trouble to let people know what they have to sell, nicely illustrate it and carefully give dimensions and prices. If you want to buy similar goods from English tool makers I can name, it takes as much trouble to get at prices and particulars as it Joes to extract an ancient tooth."

The burning of the Brooklyh Theater was horrible; the fall of the Ashtabula bridge was horrible; but the horror of horrors that stands without parallel in the annals of mankind was the recent cyclone and storm wave in India. About a quarter of a million souls were suddenly swept into eternity. The plague of London and the destruction of Lisbon by an earthquake shrink into insignificance before this annalling catastrophe. The Bombay Gazett of Nov. 30, gives some of the details of the awful event. On the fatal night, Oct. 31, there were no extraordinary portents of the approach of the storm. The weather had been hazy, windy and hot. At 11 o'clock the wind freshen ed. Suddently about midnight a mighty wave was seen, and the next instant houses and those who were sleeping therein were swept away by the flood. When the sun rose it shone upon a desolate country and a shivering terrorstricken band of survivors, who were not able to realize what kind of calamity it was that had overwhelmed them so mysteriously in the darkness.

Nickelizing, which to some extent has replaced silvering, may be itself replaced for many articles of small value, particularly if they contain copper. The manipulation is quite simple. Coarse rasped or granulated zine is boiled for some time in a mixture of three parts by weight of sal-ammoniac and ten of water, the objects immersed and stirred up with a zinc rod. The deposit is silvery bright, and resists mechanical action as successfully as a coating of nickel.

Dr. Walker Hempel, of Germany, suggests, as a means of quickening the action of the filter pump, that a series of five radial lines be etched in the funnel below the top of the filter to the neck. By this system of little canals the action of the apparatus is claimed to be consid erably accelerated.

It is a noticeable fact that the industries having a good export trade are now the busiest. Among manufacturers of agricultural implements, rifles, and hardware there is a degree of activity in marked contrast with the dullness which prevails among blast furnaces. The cotton exportation is extending to all parts of the world, including India, an old market of American cotton, Africa, and South American countries, and it is growing rapidly. From New York there were exported in 1876 as many as 74,456 packages, against 41,008 in 1875, the average of the five preceding years being 16, 581 packages. Boston is also exporting freely. The result is that the cotton mills have received a wonderful jog, and some few of those in New England were, in December, obliged to run on extra time. Exportation of leather goods is increasing, and that of leather, a new feature, is now marked. The business has been stimulated, and idle factories of boots and shoes are starting up in consequence of contracts for the foreign trade. The paper manufacturers are also doing well. He is a dult mill owner who cannot read the lesson this teaches.

One of the German dynamite manufactories has lately been producing a cheap sort of dynamite which is called pantopollite, the peculiarity of which resides in the fact that it contains a small percentage of naphthaline, dissolved in the nitro-glycerine. The purpose of this addition is stated to be in order to prevent the formation of the disagreeable nitrous vapors during explosions. The results of practical tests with the material seem to have been quite

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Are made of best steel

Are made of best steel on scientific principles. Light, practical, durable, cheap.

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Manufactured only in
this city.
Send for circular and
price list.

E. S. Lee & Co., ROCHESTER, N. Y

CARSON'S PATENT KITCHEN SINK.

Sink heads the people violate universal Sanitary Law," G, E. Waring, Jr.



The above Cut represents the Carson Sink, an Article which combines Two very important features in Domestic Economy, It prevents the pipe from choking and at the same time furnishes grease enough to make soap for the Family and sperfectly oderless.

The same of the features of extellence. Send for Circular and Prices.

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NOTARY & COMMISSIONER

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CHAS. W. ANDERSON, 34 Cliff Street, New York.

AMERICAN SCREW CO.,

Manufacturers of

IMPROVED

Gimlet Pointed Wood Screws, Patented

1876.

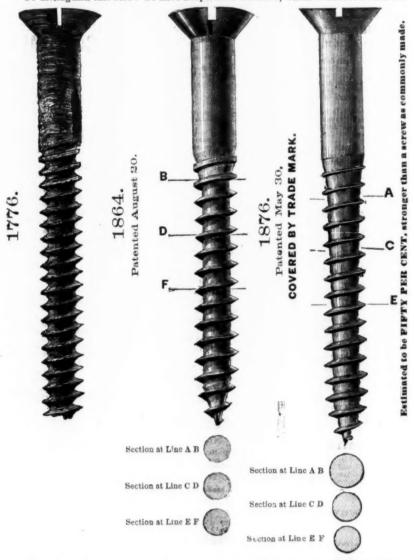


After forty years' experience we offer to the trade our Centennial Screw, patented May 30, 1876, as the best we have ever known.

The method of manufacturing is also patented, and we are changing our machiner; as fast as possible, to manufacture the improved article only. To introduce them, they will be sold at same price as the old style screw.

The new screws will be packed in manila colored boxes with new label covering end of box, and enlarged figures showing plainly contents.

To distinguish this screw we have adopted a trade mark, which is also secured to us.



The above drawings show the progress of serew making from the old blunt point to style now adopted.

Experience has shown that the weak point of screws, as formerly made, is at the heel of the thread, where all the strains of forcing the screw into the wood naturally concentrate

To avoid the sharp angle existing in the old style of screws has been the aim of all manufacturers, but every expedient hitherto adopted has proved as objectionable as the evil complained of.

It will be seen in our new screw that now only is the sharp angle avoided, but the strength very much increased, as illustrated above. See sections at lines.

CLAIM.

"A Pointed Wood Screw naving the outer periphery of the thread upon its body cylindrical, while a portion of the body below the thread and near the neck is conical, the remainder of the body to the point being cylindrical, and yet having all the thread brought to an edge of a constant angle, without jogs in the paths between the threads, substantially as described."

Canceling Postage Stamps

In an article upon the subject of cenceling ostage stamps, the World has some very intersting items concerning the very reckless maner in which inventors set themselves to work

Every year, in something over 30,000 offices. the Post Office Department cancels a thousand million postal stamps of one sort and another. It was really a little more than this last year-1,049,797,507-but a few thousand more or less make small difference. The thousand million give work enough. One-third the stamped enrelopes and the postal cards cancel themselves, in a sense. No one can use them twice. The stamps nobody has yet been able to cancel fairly and completely, and within the past month the department closed two years of experiment no wiser than it began. No one has got past the pad, the stamp, and the printers' ink with which the department began 30 years ago, and which it uses still. Down in one corner of the Post Office building there is a oom full of some four hundred or five hundred fruitless inventions.

A new ink is generally the stroughold of caneling genius, and to the fat inks-printers'and metallic inks-writing fluid-the three principal acids, caustic potash and a drug-shop of other chemicals have been added by genius at work on a letter-stamp. There is a sulphuric acid ink there which came from Cincinneti, warranted to cancel a stamp, and which eats a nole through the envelope into the bargain. There is one of caustic potash, backed by a distinguished chemist, which blisters a man's finers at touch and has its effects on the glass bottle which holds it. Nitric acid is at the bottom of another ink, and fills the air as it is used with the fumes familiar to laboratories. All these inks do too much. Most of them do too little. Your average inventor never tests his invention. A shelf full of inks-warranted to stand acids-have been washed clean and dry from canceled stamps with ordinary soap at the wash-stand in the corner. One such ink a man brought a precious bottle of from St. Louis. Was doubtful about trusting the bottle out of sight, for fear of losing his "secret." Saw some stamps canceled with it in his sight by Mr. Hazen, in charge, and saw the stamps washed clean ten minutes after with soap and water. Of the whole bottled array of inks not one has stood the acids and the alkalies of the Patent Office chemist. Last on the list is his ink; a Smithsonian chemist settled him, and the department still uses printers' ink of the best quality. No one improves on that.

There are other ways to cancel stamps by genuine cancellor. They have all been invented -a good many separate times. People in small offices have invented hooks to harrow the surface of the stamp. That takes too much time. In a large office a single motion from pad to letter must dispose of stamp and post-mark. Men with a vague idea of this have put together an elastic stamp which jabs a stamp full of holes. A little steam and a flat iron smooths that. And there is one ingenious contrivance which brings a disc down with a half-turn at the stamping-a slanting slot does the workand rips balf the features off G. W. or Franklin. Somewhere along the ten-thousandth letter this dulls and takes a blow like a sledge hammer to do its work. The New York office cancels 200,000,000 stamps a year, and the New York clerk takes more kindly to the firm, light tap of a wooden stamp. No invention has displaced that any more than the ink.

So the department has given over the attempt to cancel. Gets three cents for a good many stamps, and carries six or nine cents mail matter under the stamp. It is not a profitable opera-tion? "Do they have this bother in England?" I asked. "Oh, no; they black their stamps up so thoroughly." "Why can't we?" "Well, our postmasters are not so careful, and in England they make a row with a man if a stamp is not properly canceled. We can't do that. The department doesn't have enough control, and can't get at a man so sharply." "Then this whole loss is simply a question of a civil service, efficient or not?" "Well, yes; about that."

The Richmond Fire-Baeder & Adamson's Loss .- At midnight, on Saturday, a fire broke out in the fertilizing department of Baeder & Adamson's Glue Works at Allegheny avenue and Richmond street, in Richmond The flames originated in the extractor house, a two-story frame building, 70 feet long by 60 wide, in which the process of making neatsfoot oil is carried on, and communicated with great rapidity to a four-story frame building, 200 by 60 feet, used as a storehouse for fertilizing matter. These structures were destroyed. During the fire a benzine boiler 50 feet long exploded, and the liquid was thrown upon the ice in the Delaware, where it burned for some time. Fortunately the buildings burned were some distance from the manufactory, and the loss was thereby kept within \$20,000. The insurances are on the second building burned, the structure in which the flames originated being uninsured.

In the course of his recent experiments with an electro-magnetic machine of the gramme pattern, Professor W. A. Authony made the following observations: "The electric machine was driven by a 5 horse Brayton petroleum oil engine. The engine consumed a little over 61/4 pounds of crude petroleum per hour. The lamp used in the engine, by which the explosive mixture is fired, had a 1 inch flat wick, and consumed 29.8 grammes (459 grains) of oil per hour. The power resulting from the motion of the engine, when applied to the electric machine, produced a stream of electricity or electric light, having an illuminating power equal to that of 284 of the lamps mentioned, showing that three times more light may be produced from a given quantity of oil."

John Rowe.

The death of John Rowe, a prominent mem ber of the firm of Woodrough & McParlin Cincinnati, Ohio, occurred at his home in Columbia on the 16th instant. Mr. Rowe was a native of Prince Edward's Island. At an early age he came to this country, locating in Boston, Mass., where he learned the trade of saw maker. He moved to Cincinnati in 1857, and in 1863 associated himself in partnership, in that city, with G. G. Tench, under the style of Rowe & Tench, saw manufacturers. In this, as in all of his business undertakings, he was eminently success ful, and in 1867, having realized sufficient means to undertake larger operations, he accepted a partnership in the older firm of Woodrough & McParlin. The memory of John Rowe will not soon be forgotten by those who came in contact with him. He was warm hearted and generous in disposition, modest and unassum ing in manner, straight-forward and honorable in his dealings. As a mechanic he was an enthusiast in his business, persevering, industrious, and a thorough master of his trade. At the time of his death he was about 42 years of

It is a curious commentary on the progress of science that the most unscientifically con-structed houses in Paris and London are those in which the leaders of science carry on their deliberations. The hall in which the Paris in which the leaders of science carry on their deliberations. The hall in which the Paris Academy of Sciences meets is so badly ventilated that when the windows are closed the members are stifled with heat and foul air, while, as usual, many of them have a dread of open windows. M. Leverrier declared a short time ago that the only other apartment in France which was so intolerable was the Hall of the Institute.

Special Notices.

Office of The Table Cutlery Manufacturers' As-

sociation, Of the United States, comprising:

BEAVER FALLS CUTLERY CO., LANDER'S, FRARY & CLARK, JOHN RUSSELL CUTLERY CO., MERIDEN CUTLERY CO., CHICAGO CUTLERY MPG. CO., LAMSON & GOODNOW MFG. CO.

TO THE TRADE: With a view of reducing the ex-cessive number of Patterns of Table Cullery, the members of this Association will offer at Auction, through

Messrs. Bissell, Welles & Millet,

Messrs. Bissell, Welles & Millet,
No. 18 Murray Street, New York, their entire stock
of Discarded Patterns, which will include all goods
not regularly classified and priced by the Association, to which the attention of buyers is solicited.
All goods offered by us will be "First Quality."

By order of the Association.

P. N. OAKMAN, Jr.,
J. B. BEADLE,
C. S. LANDERS,
N. Y., January 17th, 1877.

GENTLEMEN: Referring to above Circular of the Cullery Association, we hereby announce to the Trade that we shall offer at Auction, at our Sales room, No. 15 Murray Street, on

Tuesday and Wednesday, Feb. 13th & 14th, at 10% o'clock a. m., for Cash, 14th, at 10% o'clock a. m., for Cash, over \$40,000 worth of first quality Table Cuttery, Carvers, Butcher Knives, &c., being the production of the rbove leading manufacturers, and comprising from 3000 to 4000 gross Table Cuttery, together with a large line of Carvers and Butcher Knives. This sale will be peremptory, and the entire quantity sold, as the patterns offered by as are to be withdrawn from the market. This sale will be made in lots to suit large and small buyers, and the well known character of the manufacturers is a gaarantee of the quality of the goods. The variety of styles and patterns will be such as to meet the demands of the trade of all sections, and the sale will be in every respect worthy of your attendance.

Also, in addition to above, we will offer a large and attractive line of Pocket Cutlery, Razors, Scissors, Plated Spoons and Forks, &c., &c. We would also notify the Trade that we will continue the sale on Thursday and Friday, Feb. 15th and and 16th, when we will offer a large ine of Heavy and Shelf Hardware direct from manufacturers, particulars of which will be given in The Iron Age here after. Manufacturers who may desire to avail theuselves of this opportunit; will please forward their invoices early.

Catalogues will be ready on Tuesday, Feb. 6th.

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The public are cautioned against constructing, selling or using any Screw Machinery employing the inventions or improvements described in the following Letters Patent of the United States

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machinery for nicking the heads of wood screws,
granted to H. A. Harvey, May 17th, 1864.
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The undersigned begs to state to manufacturers, mining and land companies, that he continues to devote his attention to the transliction of pambhlets, scientific treatises, catalogues, and circular letters, from and into ENGLISH.

SPANISH:

Having been employed in consular and other translictions of late years under authority of the governments of Germany and Spain, and in mercantile and fiancial work of the kind by the Evening Post, The Iron Algebraity Bulletin, Commercial and Financial Chronicle, El Cronista, and other leading New York papers, as well as by a number of American manufacturers and land companies, he has had constant experience, the call in technical terms and phraseology, always the most difficult to master in the various languages, the most difficult to master in the various languages, as any of eight versy in Spain, South and Central America, Mexico, the West Indies and France and her survanatee that what he undertakes as a translator is correct.

C. KIRCHHOFF,

C. KIRCHHOFF. Box 2806, P. O., New York,

Trade Report.

Office of The Iron Age. Wednesday Evening, Jan. 24, 1877.

During the past week a feeling of greater confidence has gained ground in business circles. The prospect of an amicable and satisfactory settlement of the presidential election is considered good, while the situation in the East is decidedly warlike. With peace at home and war abroad it will not be long before trade revives and industry is stimulated. The money market has worked steadily toward greater ease, call loans ranging 4 @ 5 per cent., and prime mercantile paper 41/4 @ 6 per cent.

The gold market has been steady between 106 and 106%. The following shows the

daily range of the premium:	Lowest.
Thursday	106%
Friday 10636	10634
Saturday 106%	10636
Monday10636	106%
Tuceday	106 ₺
Wednesday106%	106

The market for government bonds has been active and strong; state bonds have been dull railroad bonds strong with an upward tendency. We give below the closing quotations of governments.

The stock market has been generally strong, with principal dealings in Western Union and Lake Shore. We give below the closing quotations of active shares.

The bank statement shows a rise in the legal tender average of \$3,085,900; the specie average is also \$1,237,500 higher and the banks still hold more specie than they do legal tender notes. The total reserve is \$4,323,400 higher than last week; the increase in the surplus reserve is less because reduced by the allowance made for the increase in liabilities. The surplus reserve, however, is up to \$24,268,000, against \$20,813,225 last week. The following is a comparison of the bank averages for the past two weeks: past two weeks:

Jan. 13.	Jan. 20.	Diffe	erences.
Loans \$254,173,400	252,411,900	Dec	\$1,761,500
Specie 39,737,400	40,974,900	Inc	1.237,500
Legal tend's. 87,042,900	40,128,800	Inc	3,085,000
Deposits 223 868,300	227,342,800	Inc	3,474,500
Circulation 15,517,300	15,491,900	Dec	25,400
The foreign trade			the week
are shown by the follo	wing table	8 :	

IMPORTS

For the week ended Jan. 20: 1875. Total for week. \$6,079,348 Prev. reported. 13,008,536 16,417,539 \$5,196,030 12,245,081 Since Jan, 1... \$19,087,884 \$22,294,115 \$17,441,061 Among the imports of general merchandise were articles valued as follows:

	Quant.	Value.
Anvils	116	\$954
Brass goods	21	3,338
Chains and Anchors	201	5,627
Copper		198
Cutjery		26,946
Guns	42	2,905
Hardware	81	2,068
Iron, pig, tons	397	9,999
Iron, sheet, tons		1,890
Iron cotton ties		1,005
fron, other, tons		883
Metal goods		25,424
Needles		9,208
Old metal		943
Per caps	24	5,406
Saddlery		101
Steel	1,524	18,052
Silverware		114
Tin, boxes	19,171	106,247
Tin. 1.588 slabs	160,029	36,286
Wire		1,478
EXPORTS EXCLUSIVE O	OF SPECIE.	
For the week ended Jan. 2	3:	

1875. 1876. 1877. For the week.....\$3,611.472 \$5,670,726 \$6,379,186

Ticalonnia ichoraca valvasingo valvasi	240	at another
Since Jan. 1 \$16,744,402 \$19,902,	541 \$5	23,813,50
For the week ended Jan. 20:		
Total for the week		
Total since Jan. 1, 1877		*758,629
Same time in 1876		.1,589,923
Same time in 1875		
Same time in 1874		2,050,059
Same time in 1873		5,979,233
Same time in 1872		945,299
Government bonds at the close at the following quotationss:	were	strong
at the ronound dangerous.	Est	Aulrod

	Bid.	Asked.
U. S. Currency 6s	12834	123%
U. S. 6s 1681, reg		11436
U. S. 6s, 1881, cou	11436	11436
U. S. 6's, 1865, reg	109%	10934
U. S. 6's. 1865, cou	10936	109%
U. S. 6's, 1865, new reg	110%	110%
U. S. 6's. 1865, con	110%	110%
U. S. 6's. 1867, reg	118%	118%
U. S. 6's. 1867, coa	113%	113%
U. S. 6's. 1868, reg	11736	11736
U. S. 6's. 1868, cou		
U. S. 10-40 reg	113%	118%
U. S. 10-40 cou	11334	114
U. S. 5s. 1881, reg		11134
U. S. 5e, 1881, cou		112%
U. S. 41/a. 1891, reg	107%	1083
The following are the latest active list stocks:	quota	tions of
	Bid.	Asked.
American District Telegraph		24
Atlantic and Pacific Telegraph		16%
Ohione & Northwestown	961/	969

U. S. 6's. 1868, reg1173	11736
U. S. 6's. 1868, cou	11736
U. S. 10-40 reg1135	113%
U. S. 10-40 cou	114
U. S. 5s. 1881, reg	1111/
U. S. 5e, 1881, cou	1113/
F. O. 41 - 1901 mars 1001	112%
U. S. 43/a. 1891, reg 107%	108%
The following are the latest quota active list stocks:	tions of
Bid.	Asked.
American District Telegraph 18	24
Atlantic and Pacific Telegraph 16%	16%
Chicago & Northwestern 861/	36%
" Pref \$7%	5734
Chicago, Rock Island and Pacific 10134	1023
Chic., Bur. & Quincy	119
Col Chie & Ind Cent 3	336
Col., Chic. & Ind. Cent	29
Cleveland and Pittsburgh 9214	93
Chicago & Alton	
Chicago & Alton	102
" Preferred 110	112
Canton 25 Del., Lack. and Western 78% Delaware & Hudson Canal 68%	31
Del., Lack. and Western 78%	78%
Delaware & Hudson Canal 66%	68%
Adams Express	103%
American Express 57	5734
United States Express 531/4	54
Wells, Fargo & Co. Express 84	85
Brie 9%	9%
Harlem 140	141
Hannibal & St. Joseph 124	1336
is is Prof 9614	97
Illinois Central	5736
Kansas Pacific	836
Lake Shore	56%
Michigan Central	49%
Marrie Central	
Morris & Essex	92 ½ 1834
Milwaukee & St. Paul	10%
	48%
Mariposa	6
1 Pref	636
N. Y., N. H. & Hart 152%	152%
N. Y., N. H. & Hart	10334
New Jersey Central	383%
Ohio & Mississippi. 6% " Preferred. 11%	7
" Preferred 11%	19
Pacific Mall 25%	25%
Panama122	_
Panama. 122 Pittsburgh & Ft. Wayne. 100% Quicksilver. 14%	10134
Qnicksilver	16
Pref. 20 St. L., Kan. City Northern 5 Pref. 25	2234
St. L., Kan. City Northern 5	536
Pref 25	26
Tol., Wabash & Western 6%	6%
Union Pacific	68%
Western Union Telegraph 76%	76%
moreta Chica Acceptapa 10%	10/8

GENERAL HARDWARE.

There is little if any difference to notice in the condition of the trade this week compared with last, and the changes in values which have occurred are not of great importance. The failure of Linforth, Kellogg & Co., of San Francisco, Cal., is announced.

The demand for Nails continues light and unsatisfactory at unchanged figures. We quote as before: 10d. to 60d., \$3.00, net, with the usual allowance of 10 cents per keg on orders of 100 kegs and over.

At a recent meeting of the Western Nail Association, the following standard card was adopted. It differs but little from the cards heretofore published by the Nail manufacturers in the West, but its adoption makes it binding on the members of the Association, and obligatory in sales made in the West. In selling East they sell by the Eastern card. The most important change is the charge of 10c. extra for

ich ball	keg.
andard	Card of the Western Nail Association, adopted January 10, 1877.
	Nails, Fence and Brads.
E09 of E	#9-95 Rd to 9d #3-10

3d	4d to 5d5.60
Ba	rrel.
% inch 6.90 1 5.35 1 4 4.35 1 4 3.60	% inch
	ing.
% inch7.35	% inch8.85
	to Hhd.
	8d3·60
Clin	nch.
	4.60
Sla	ting.
54 3:85	4d
Finis	hing.
132 10 6:10	1½ inch
	and Box.
	8d 3.85
	Blued.
4d4.60 2d6.60	3d5.88
Cut S	pikes.
All sizes	3.10
Boat 8	Spikes.
All sizes Each half keg 10 cents e	extra. 8 60
	d Level Co. have issued

a new catalogue of their goods. In introducing it to the notice of the Hardware trade, they say: "Such changes have been made in prices as improvements in our facilities for been added to complete the assortment necesask for them the closest scrutiny and com- sent. parison. The goods themselves shall be their own best recommendation."

A notable feature in this new catalogue is the further reduction in the prices of Bailey's Patent Adjustable Planes, and the introduction of a new line of Planes, to be known in market as the Stanley Adjustable Planes. Of this latter line the Metallic Planes have a Wrought Steel Stock, and both these and the Wood their catalogue of 1875-76, illustrating some Planes are adjusted by a compound lever, which for simplicity and certainty of action
cannot be surpassed. These Planes are offered
and the "Exigency" Screw Driver. at prices which place them in the reach of catalogue is fully illustrated, and an edition has been printed on extra thin paper, with reference to foreign circulation. We print below their price list for the new line of goods mentioned above, which is subject to same discount as the Bailey Patent Adjustable

Planes.

The Stanley Adjustable Planes.

No. 104, Smooth Plane, 9 inches in length, 2%

\$3.00

Mass., and No. 42 Cliff street, have added to their business the manufacture of the Lenox Improved Wire Bale Ties, formerly manufactured by E. S. Lenox. They have issued the following list for these Ties, the regular discount from which is for Extra, 30 per cent.; Medium and Large, 25 per cent. These Ties are made of steel wire, and are suitable for baling hay, straw, moss or other material. They also manufacture the Cross Head and Figure Four Ties, which are sold at the same list and discounts:

Lenox Improved Wire Bale Tie

			-				
				250	Extra.	Medium. 250 ties in	125 ties in
				each	bundle.	cach bundle.	each bundle.
6	tee	t.			\$4.34	\$5.09	\$4.20
6	6.6	3	in.		4.43	5.26	4.35
6	6.6	6	66		4 64	5:44	4:50
6	9.6	9	46		4-79	5.68	4.65
7	6.6				4.94	5:80	4.80
Ť	5.6	8	60		5.10	5 96	4*96
ż	4.4	6	44		5-25	6.16	5.10
Ŷ	6.6	9	66		5:40	6.34	5.25
Ř	4.6	-			5.26	6.52	5:40
Ř	6.6	2	44		5.72	6:70	5.55
ĕ	60	6	69		5.88	6:88	5.70
Ř	6.6	9	66		6:02	7.06	5'84
9	44				6.17	7:94	5:84 6:00
9	64	8	66		6.83	7:42	6.15
ã	4.6	6	44		6.49	7.60	6:30
ĕ	64	ğ	46		6.64	7.78	6:45
ä	66	-			6.79	7.96	6.60
0	66	2	86		6.94	8:14	6-75
6667777888889999000	4.6	6	68		7:09	8.33	6.90

We invite the attention of the trade to the important announcement by Bissell, Welles & Millet, which will be found among "Special Notices" on the opposite page. They will sell by auction at their ware-rooms, No. 15 Murray street, on Tuesday and Wednesday, Feb. 13 and 14, commencing at 10-30 a. m., the entire stock of discarded patterns held by the different manufacturers comprising the Table Cutlery Mfs. Association, viz.: Beaver Falls Cutlery Mfs. Association, viz.: Beaver Falls Cutlery Co., Landers, Frary & Clark, John Russell Cutlery Go., and Lamson and Goodnow Mfg. Co. The stock to be sold, in value about \$40,000, includes beside Carvers, Butcher Knives, &c., from 3000 to 4000 grcss Table Cutlery. This sale will be peremptory, and will be made in lots to suit large or small buyers. In addition to the large of the property of the stock of discarded patterns held by the different manufacture of the stock to be sold, in value about \$40,000, includes beside Carvers, Butcher Knives, &c., from 3000 to 4000 grcss Table Cutlery. This sale will be peremptory, and will be made in lots to said large or small buyers. In addition to the large transpart of the stock to the substitute to the substitute transpart of the stock to the substitute to the substitute transpart of the stock of the substitute transpart to the same to order in any size between 10x14 and 24x\$4; also in circles from an 24x\$6. (or the substitute transpart to the same to order in any size between 10x14 and 24x\$4; also in circles from 5 to 24 inches diameter, at an atyas of in price of 20 per cent. over the square; we are making various grades at different prices to suit the test which the work may require.

Of late we have introduced Steel Plates for Shovel Iron with communication suit large or small buyers. In addition to the above, Bissell, Welles & Millet will offer a large line of Pocket Cutlery, Razors, Scissors, &c., and on Thursday and Friday, 15th and 16th prox., they will continue the sale, offering a large line of Heavy and Shelf Hardware direct from manufacturers.

The National Horse Nail Co., Vergennes, Vt., have established their agency in this city with Horace Durrie & Co., No. 97 Chambers street, who are prepared to fill orders either from store or factory, at the manufacturers' best terms. The Nails made by this company are of the best Norway Iron, and they guarantee them equal to any similar goods in the market. They are made both bright and blued, pointed and finished. This company was established about seven years ago, and we are informed that their business has steadily intheir facilities for the production of these goods for the season of 1877. For prices of Jewett's Patent Water Filter. these Horse Nails we refer our readers to our price current on the 30th page.

The American Lock Mfg. Co., of Cazenovia, N. Y., have issued the following circular under date of 1st inst. :

der date of 1st inst.:

CAZENOVIA, N. Y., Jan. 1, 1877.

GENTLEMEN.—We have effected an arrangement with the Union Nut Company, of 99 (Chambers street, New York, to act as our general agents for the sale of the Locks manufactured by us. In requesting you to send your orders in future to them, we desire to call your attention particularly to the superiority of our Locks and trust your sales of them musy be largely increased. All orders sent to them will be promptly and satisfactorily filled.

Respectfully, yours, Respectfully, yours,
AMERICAN LOCK MFG. Co.

Krauss & Hahn, concavers, No. 41 Chatham street, inform us that some person has been visiting manufacturers and dealers in Cutlery, producing goods warrant; and new Tools have endeavoring by the use of their name to procure goods. In some instances he has succeeded. sary to meet the fullest requirements of deal- They desire to caution the trade in the matter ers in our line of goods. We aim to secure for and say that when their purchases are not made our goods the best practical qualities, and the by a member of their firm personally, their highest standard of style and finish; and we written order on a printed form is invariably

The firm of Clark, Smith & Co., Fort Plain, N. Y., proprietors of the Fort Plain Spring and Axle Works, is dissolved by the withdrawal of Wm. Clark. The business will be continued by the remaining partners under the firm name of Wood, Smith & Co.

The Middletown Tool Co., Middletown, Conn., have issued a four page appendix to new styles of Harness Snaps, Pocket Wrenches,

Sidney Shepard & Co., proprietors of the every workman using such tools. The entire Buffalo Stamping Works, Buffalo, N. Y., have issued the following circular:

BUFFALO, Jan. 15th, 1877.

We take pleasure in advising the trade, that on or before Feb. 15th, next, we shall open a branch warehouse, at No. 86 Lake street, Chicago, Ill., where will be found a large stock and full line of our own manufactures, Tinmen's Supplies and House Furnishing Hardware.

We find this action on our part necessary in

order to facilitate the business of our extended and increasing trade throughout the East, West and South. This department will be under the management of two resident partners, Messrs. Chas. G. Dennison and Geo. A. Tripp. Orders for this branch, from those favorably located, respectfully solicited.

SIDNEY SHEPARD & CO.

The Stanley Plane Irons are the same prices as the Bailey Irons.

No. 110, Block Planes.

No. 120, block Planes, Adjustable, 7½ inches in length, 1½ inclustr.

No. 122, Smooth Plane, 8 inches in length, 1½ inclustr.

No. 133, Handle Smooth, 10 inches in length, 2½ inclustr.

No. 121, Jack Plane, 20 inches in length, 2½ inclustr.

No. 122, Jointer Plane, 20 inches in length, 2½ inclustr.

No. 123, Jointer Plane, 20 inches in length, 2½ inclustr.

No. 124, Mood Mark Co.

No. 125, Mark Copper or Galvanized Cylinders; Lard Coulers and Presses; Portable Bollers for use with wood or coal; Meat Rockers, with 4, 5 in. Cutter.

No. 123, Jointer Plane, 26 inches in length, 2½ in. Cutter.

No. 124, Jointer Plane, 26 inches in length, 2½ in. Cutter.

No. 125, Mood Mark Co.

No. 126, Mood Mark Co.

No. 127, Jack Plane, 26 inches in length, 2½ in. Cutter.

No. 128, Mood Moon Mark Co.

No. 129, Fore Plane, 26 inches in length, 2½ in. Cutter.

No. 129, When Mark Co.

No. 120, block Planes, Adjustable, 7½ inches in length, 1½ in. Cutter.

No. 120, block Planes, Adjustable, 7½ inches in length, 1½ in. Cutter.

No. 120, block Planes, Adjustable, 7½ inches in length, 1½ in. Cutter.

No. 120, block Planes, Adjustable, 7½ inches in length, 1½ in. Cutter.

No. 120, block Planes, Adjustable, 7½ inches in length, 1½ in. Cutter.

No. 121, Jack Plane, 15 inches in length, 2½ in. Cutter.

No. 122, Jack Plane, 15 inches in length, 2½ in. Cutter.

No. 123, Jointer Plane, 26 inches in length, 2½ in. Cutter.

No. 129, Fore Plane, 26 inches in length, 2½ in. Cutter.

No. 120, block Planes, Adjustable, 7½ inches in length, 1½ in. Cutter.

No. 120, block Planes, Adjustable, 7½ inches in length, 1½ in. Cutter.

No. 120, block Planes, Adjustable, 7½ inches in length, 1½ in. Cutter.

No. 120, block Planes, Adjustable, 7½ inches in length, 1½ in. Cutter.

No. 121, Jack Plane, 15 inches in length, 2½ in. Cutter.

No. 122, Jack Plane, 15 inches in length, 2½ in. Cutter.

No. 123, Jack Plane, 15 inches in length, 2½ in. Cutter.

No. 124, Jack Plane, 15 The Washburn & Moen Mfg. Co., Worcester, and to Knives; Knives; Knives; Saves, Steels, Cleavers, &c.

We print below the third annual circular of the United States Iron and Tin Plate Co., of H Pittsburgh. The works of the company are at McKeesport, Pa. :

McKeesport, Pa.:

PITTSBURGH, Jan. 2, 1877.

DEAR SIR: At the beginning of the new year we avail ourselves of the opportunity to render you our compliments, and to express to you our thanks for the patronage with which n bave favored us in the past.

you have favored us in the past.

Our efforts to introduce a new branch of the
metal industry into this country, have so far
met with success, that we are now able to enter
into the new year with increased facilities and
improved arrangements to meet the wants of

our customers.

The Tin and Terne Plate trade has been so The Tin and Terne Plate trade has been so depressed and prices have been so low that we have hardly derived any profits out of this branch of our business. In consequence of the stringency in the English market and the very low prices at which the English manufacturers have disposed of their products, we have not been able to develope this industry fo such an extent as we would have liked; we had to discontinue the manufacture of Bright Tin Plate at present, but we shall still manufacture the U. S. Terne Plates, which have already gained a very favorable reputation throughout the country, hoping that with the coming season the business will brighten up and that a fair

the business will brigaten up and that a fair price will be paid for this article.

By constant practice we have obtained considerable experience in the production of fine polished or unpolished Stamping Iron, and by the new arrangements which we have made lately we are able to manufacture an article

gaining in the favor of dealers and consumers, and our trade has grown extensively during the last year. Although we have made considerable enlargements at our works, we would request you, in case you are willing to favor us with your orders, to give us as much time as possible for their execution, in order to enable us to give all care and attention to the filling of the same.

In ordering from us we would also request you to state for what purpose the from is need-

you to state for what purpose the Iron is needed, and we shall likely be able to tell which grade will suit you best.

grade will suit you best.

We shall be pleased to have your favored correspondence, and request you to send for our prices. We remain,

Very respectfully yours,

U. S. IRON AND TIN PLATE CO.

W. C. CRONEMEYER, Secretary.

John C. Jewett & Sons, Buffalo, N. Y., have sued their annual catalogue for 1877. The book which covers 120 pages, is handsomely illustrated. Their assortment of Refrigerators is particularly fine, and 16 pages of their book lined Cooler; for this line of goods they print a number of flattering testimonials from dealers and others who have tested them. The assortment of Bird Cages, Japanned Tinware, etc., is large and complete, and in miscella-neous House Furnishing goods a larger variety is shown than in any of their preceding catalogues. We print below their price list for Refrigerators and Ice Cream Freezers : also their discount sheet. The dimensions given in the list for Refrigerators is in every instance out-

side measure :

	Length. Inches.	Depth. Inches.	Hight. Inches.	Prices.
No.	41 33	22	43	\$24.00
NO.	42 36	24	46	28.00
No.	43 39	26	48	82:00
No	44 43	27		
			50	36.00
No.	45 47 Hardwood Palace 1	28 Refrigerat	52 er, Ice P	40.00
No.	45 47 Hardwood Palace I and Wi	28 Refrigerat ine Cooler.	52 er, Ice P	40.00 reserver
No.	45	28 Refrigeratine Cooler. Depth.	52 er, Ice P Hight.	40.00 reserver Prices.
No. The	45	Refrigeration Cooler. Depth. Inches.	52 er, Ice P Hight. Inches.	40.00 reserver Prices. Each,
No. The	45	28 Refrigeratine Cooler. Depth.	52 er, Ice P Hight.	40.00 reserver Prices.

Patented Dec. 18, 1866.—Handsomely Oak Grained,
—Galvanized Wire Shelves.—Porcelain Casters.—
Bronzed Trimmings.
Within the past year very important improvements have been made in the "Queen," and we believe it will be pronounced decidedly the best low-priced family Refrigerator in the market. We have

			Hight. Inches.	Prices.
No. 20	26	17	40	\$12.00
No. 21		18	42	14.50
No. 22	30	19	44	17:00
No. 23		21	46	19.50
No. 24	36	23	48	22:00
Jewett's	Patent	Arctic Re	frigerator.	
Patented	Dec. 18, 1	866, and	Oct. 15, 186	7.

Length Inches No. 32		Hight. Inches. 44½ 46¾ 48¾	Price. Each. \$22.00 25.00 28.00
The " Gem " Refriger	ator, Water,	Wine a	nd Milk

cago, Ill., where will be found a large stock and full line of our own manufactures, Tinmen's which answers for Ice and Water Cooler, faucust Supplies and House Furnishing Hardware.

We find this action on our part necessary, in order to facilitate the business of our extended and increasing trade throughout the visit of the preservation of Meats, Milk, Berries, Wines, etc. Hight. Width. Depth. Prices. Inches. Inches. Each. No. 2 24 16 16 \$14.00

No. 4 28	18%	18%	18:00
Ice	chests.		
Shelves made of Galvan	ized Wire.	-Granite	Painted.
Length.	Depth. Inches.	Hight. Inches.	Prices.
No. 1	22	80 31	\$8.00
No. 3 40	25	82	12.50
No. 4 47	27	33	15.00
Double Cover, Oc	ak Graine	d Ice Ches	t.

No. 12 No. 13 No. 14			40	Inches. 23 25 27	ln	34 36 38	Each. \$14'00 16'00 20'00
Graine	ewett's	3	Metal-C	Covered Covered Ends	Ice	Rack	k.—Oak- s.—Two
Sizes.			ngth.	Depth.		ight.	Price.

29 31 Lager Beer Regrigerator-Grained Black Walnut. No, 3, Capacity, 3 Kegs. Dimensions. Hight. Inches. 67 33%

	No. 6, Capacit	y 10 Kegs.	
	Dimens	ions.	
Length. Inches. 60	Depth. Inches. 88	Hight. Inches. 67	Price, Each, \$75.00
	Centennial Ice Ci	ream Freezers.	
	Patented Ju	ly 9, 1872.	
	Prices of Cog-W	heel Freezer.	Each.
No. 19, two No. 20, thi	quarts		5'00
No. 21, four	quarts		6:00
No. 22, six	quarts		7.50
No. 23, eigh	it quarts		10.00
	quarts		
No. 25, twe	lve quarts		13.50
	teen quarts		
No. 27, twe	nty quarts		20.00
	Prices of Fly-W	heel Freezer,	
No. 28, sixt No. 29, twe	teen quarts nty quarts		28.00

25:00

Queen. Arctic. Gem. Gem

Ice Chests

Refrigerators—Lager Beer.
Cooler Stands—Climax
Pilters—Jewett's Patent.
Coolers—"Star," "Polar, and "Crystal,"
Porcelain Reservoir.
Hotel.
Ice Pitchers, Tumbler Drairers, etc
Bathing Apparatus.
Bird Cages, Japanned—Jewett's Patent.
"Robin and Mocking Bird.
"Squirrel Squirrel
Parrot
Parso
Parse
Flower Vascs and Baskets—Patent
Moss Baskets and Plant Stands Moss Baracte and Flank Aquariums Freezers—Centennial Freezers—Packers. rrezers—Fackers Tea Trays. Toilet Ware Cuspadores—Patent Self-Righting... Cuspadores—Patent Self-Righting net Spittoons net Slop Pails, Foot Baths, etc. net Children's Trays, Crumb Brush and Tray, etc. net Fly Traps and Dust Pans net Dust Pan and Brush net Register Fenders, etc. net Jelly Molds, Sieves, etc. net Jelly Molds, Sieves, etc. net Wire Goods net Wire Goods net Pan Canisters, Tea Kettles and Ice Chisels net Terms—Cash, with Exchange on Buffalo or New York.

Lewis Oliver & Phillips, Pittsburgh, Pa., have issued under date of 20th instant, the following revised price list for their specialties. The prices of their goods for New York delivery can be obtained of H. B. Newhall, No. 11 Warren street, who represents them in this city. These revisions reached us after the 35th page, on which their quotations regularly appear, had gone to press, the quotations on that page are in consequence void.

The following are the Card rates, f. o. b. in Pituburgh of Lewis, Oliver & Phillips, H. B. Newhail, 11 Warren St. New York, Agent. rates net rates net row Wedges. 32 % b net Norway Nail Rods. 33 % \$\psi\$ b net Norway Nail Rods. 34 % \$\psi\$ b net Iron Crow Bars (in ordering please state whether "Wedge" or "Pineh" point). 4 c \$\psi\$ net Beetle Rings. 5% \$\psi\$ b net Pence Pickets— \$\psi\$ net, \$\psi\$ c \$\psi\$ ft. of fence. less 15 % off net. Carriage and Tire Bolts, 75 % 5 % off net.

Coll Chain, %, 5%c; 9-16, 5%c; 1%, 6c; 7-16, 6%c; %, 6%c 5-16, 7%c; %, 9c # 5 net. erew Hitching Rings, light, with 14 ring, No. 1, 44:00 # Continuity, \$3, 3c; \$19, 5 %c; \$4, 6c; \$7, 6 %c
5-16. Tsgc; \$ 90 \(\tilde{\psi} \) in et.
Screw Hitching Rings, light, with \$4 \ting, No. 1, \$400 \(\tilde{\psi} \) in et; heavy with \$5-16 \ting, No. 2, \$4-50 \(\tilde{\psi} \) io net.
Bridge and Roof Bolts—
1 to 2 in. diam. over \$1 \tilde{\psi}, long. \(\tilde{\psi} \) is 3%c net
1 to 2 in. diam. from \$1 \tilde{\psi} \) for \$1, long. \(\tilde{\psi} \) is 3%c net
1 to 2 in. diam. from \$1 \tilde{\psi} \) for \$1 \tilde{\psi} \) in \$2 \tilde{\psi} \) in \$4 \tilde{\psi} \) net
1 to 2 in. diam. from \$1 \tilde{\psi} \) for \$1 \tilde{\psi} \] in \$4 \tilde{\psi} \) net
1 to 2 in. diam. from \$1 \tilde{\psi} \) to \$1 \tilde{\psi} \] in \$4 \tilde{\psi} \) net
1 to 2 in. diam. from \$1 \tilde{\psi} \) to \$1 \tilde{\psi} \] in \$4 \tilde{\psi} \) net
1 to 2 in. diam. from \$1 \tilde{\psi} \) to \$1 \tilde{\psi} \] in \$6 \tilde{\psi} \) in \$6 \tilde{\psi

5c W set for each additional inch over 14 to All Fer nade. ordering Box Strap Bolts please give diameter at serew End. rought fron Bolster Plates, 2¼ in. wide, ≥ set.....45c

Wrought Hammer Straps, heavy pattern, each ... 13 c

Rub Irons, each ... 18 c

Bub Irons, each ... 18 c

Double and Single Tree Clips, figure 1, each ... 2 c

Leach ... 2 c

Pole Caps, each ... 2 c

Pole Caps, each ... 2 c

Fole Caps, each ... 2 c

Fole Caps, each ... 2 c

Rub Irons, each ... 2 c

Pole Caps, each ... 3 c

Strap Holts, Boister Plates, Hammer Straps, Rub Irons, c

Glass and Pole Caps, in lots of 50 acts, ... das 48 s

For each order amounting to 82s net, or over, for the

following goods: Wagon Hardware, Carriage and Tire

Bo'ts, Rivets, Skein Boits, Nuts, Washers, Chains,

Bevel Box and Tongue Cap Iron, we will allow an ex
tra discount of 10 per cent off all Wagon Hardware,

subject to discount, comprised in the order. Jobbers

who do not deal in Iron, we allow to substitute Strap

and T Hinges in lieu of Revel Box and Tongue Cap

Iron to make order up to \$20 worth and secure the

Single Tree Hooks, Nos 1 and 2.

Single Tree Hooks, Nos 1 and 2.

Single Tree Irons, New Pattern ... each, 34c net

Wagon Box Rods, wide track, with Patent

Collar. ... each, 84c net

Wagon Box Rods, wide track, with Patent

Collar. ... each, 7c net

Single Tree Iron, W. Hook, Malleable Fer
Fulle. ... each, 7c net

Single Tree Iron, W. W. Hook and 7-18 Clip, each, 7c net

Single Tree Iron, W. W. Hook and 7-18 Clip, each, 7c net

Neck Yoke End Ferrule, Malicable, with Wt. Iron Ring....each, 65c net Neck Yoke Attachment, with plates com-plete...each, 23c net

Axle Tree Clips, No. 1 each 2%c net
" No. 2 " 5%c net
" For Far n and Lumper Wagons,
Shank, 9-16 in., flat part 1% ineach, 6%c net
Plow and Wagon Clevises P 7c net
California Tire Rivets and Burrs, 5-16 10c net
Wagon Box Staples, 15 to 25 in. to clinch. # 1000.\$10.75 net
" Bevel Box Iron, to rivet on. # 1000 7:25 net
Neck hoke Eyes, each44c net
WITH % THEEN, CACH IC HEE
King Bolts, %, 1, 1%, and 1% in. diam # 19 3%c net
Wagon Rivets, ex. large flat, oval and steeple head, k in diam 1 in and longer
Wagon Hivets, 3-16 in. diam., 1 in. and longer " 8 c net * to 1 inch long * 5 le extra
Nafla, in 5 m paper boxes " ic extra
in 26 b wood " " 16c extra
Wagon and Hinge Nails, pointed by hand-
% x8 and longer. 2% & 2% 2 & 2% 1% and shorter.
11c @ m. 18c @ m. 15c @ m. 17c @ m net
S-1f x9 and longer 2 × A 2 × 2 & 2 × 1 × and shorter.
12c 30 m 14c 30 m 15c 3c m 18c 30 m net
Wagon Rivets and Nails, in less lots than
one keg each size b %c extra
Double Tree Plates " 71/c net
Conding " see a se
Tongue " Tyc net
Neck loke Listes of cue.
Tongue Cap Iron, 1%, 2 & 2% in. wide, same price * n as
No. 12 Band Iron.
Wagon Chains, Stay, Lock and Tongue, 5-16 in. P 5 7c
net; 14 in., Sc net. Our prices are all subject to change of market, without
notic :.

BRITISH IRON MARKET.

(Specially reported by cable for The Iron Age.)

WEDNESDAY, Jan. 24, 1877. Scotch Pig .- The market is dull and prices weak. The following are makers' quotations:

Manufactured Iron is without change. Rails are more active and prices are firmer. A large business has been done during the

IRON.

American Pig.-The features of the general market remain as before, the only events of interest being certain large sales made by some of the principal companies, of which the particulars are for the present withheld from the public. Among the sales reported are a large quantity of Allentown at the furnaces for immediate cash; also 15,000 tons of Thomas of the various grades, for season delivery. It is also reported that the Crane Company have made sales amounting to several thousand tons; meantime, quotations remain unchanged, although there is no doubt that large buyers could easily obtain concessions. We quote as before: Foundry No. 1, \$21; Foundry No. 2, \$19.50 @ \$20; Gray Forge, \$19 @ \$20.

Scotch Pig.-Sales continue light, and arrivals unimportant. Quotations are unchanged, as follows: Glengarnock, \$27 @ \$27.50; Eglinton, \$25.50 @ \$26.

Rails .- We quote without change, Steel \$50, and Iron \$35.50 @ \$37.

Old Rails.-The sale of 500 tons at \$20 is reported. We continue our quotation of \$20. Scrap.—We note a little firmer feeling and report the sale of 300 tons at \$26.50. We quote \$26 @ \$27.

METALS.

Copper.-The demand for Copper on the spot is very limited, and sales for the week have teen restricted to 500,000 pounds Lake Superior available and near-by at 191/3c. @ 191/c., which is the range at the close. Arrivals are light, and holders do not press them on the market; Copper in store is also offered sparingly. If the least genuine revival in trade took place, it is more than likely that Copper would improve in value without difficulty, present rates being considered quite moderate. Baltimore we quote, 191/c., nominally. As per cable from London, Best Selected was sustained at £82, while Chili Bars declined to £74. The Wallaroo sale since resulted in an average of £88. 6/8, which is a low price, considering its comparative scarcity. Shipments from the west coast of America to Europe during the first eleven months of 1876 have been 46,900 tons, against 44,040, 43,890 and 39,150 in 1875-1873. The imports of Ore, Regulus and Copper into the United Kingdom during the past year are estimated from the Board of Trade returns to have been 143,410 tons. against 126,078 and 113,583 in 1875 and 1874, out of which Copper alone 39,200 tons, against 39,572 and 37,611; the exports of raw and manufactured Copper were 52,926 tons, against 51,390 and 59,606 in 1875 and 1874. The visible supply in England and France was ample on the 1st instant, being 42,335 tons. Wallaroo was then worth £85, 10/; the sale we alluded to, therefore, shows a decline since of over £2 in this kind, Chili Bars giving way about as much. There is a moderate demand for manufactures, which we quote 31c. for Sheathing, and 32c. for Bolts and Braziers; New Yellow Metal Sheathing, 181/c. @ 19c.; and Yellow Metal Bolts, 26c. @ 28c., net cash.

Tin .- The developments in this metal have not been favorable since the commencement of the year. Here the arrivals have been unusual ly large-something like 11,000 slabs since Jannary 1, half of which this week. This, to gether with lower cable advices from London and Singapore, has unsettled our market somewhat, and a lot of Stralts is rumored sold at about 16%c., gold. We quote, nominally Straits, 17c. @ 171/8c., gold; English Refined, 16%c. @ 17c. ; ditto Common, 16%c. @ 16%c. and Bines, 19c. @ 191/e., all gold, large lines, The accounts by cable are conflicting. Some parties have still the quotation of £75, and others from £74, 10/down to £74, for Straits, while Singapore has dropped to \$19.50, with an of 4/4. Among the annual reviews from Holland we note that the principal one takes a rather disconsolate view of the future of the metal. In Tin Plates there has been a little more doing, and we quote at the close, gold, per box, ordinary brands, large lots, as follows : Charcoal Bright, \$6.75 : ditto ternes. \$6 @ \$6.121/4; Coke Tin, \$6, and ditto ternes, \$5.50 @ \$5.621/c. Liverpool (per cable) is firm in the hands of makers; the only weak-ness now and then perceptible has to be traced to second-hand lots. The outlook in this article, if anything, seems to us rather more cheerful: there is indeed hardly a dissenting voice on this subject.

Lead .- Of Richmond, a lot of 190 tons has changed hands, supposed to have been at 6.15c., currency; aside therefrom the sales in lots do not exceed 75 tons for the week. Freights are now so high, 56c. from St. Louis, and the stock on the Atlantic seaboard is so much reduced, that a rather improved feeling manifests itself, though as yet not leading to much business, the demand for Lead awakening very slowly. Soft Missouri at St. Louis brings 6c., currency, and Selected 6:15c., currency. In Foreign nothing transpires; we quote the same, nominally, transpires; we quote the same, nominally, 6%c. (@ 6%c., gold. Europe had been looking up a little under a Chinese demand at London, subsequently subsiding on account of advaccing freights. According to the valuable tables of Mr. Edward A. Casweil, of this city, the United States produced last year 57,210 tons, against 53,253, 46,759 and 37,983 the previous three years. Manufactured remains in limited request at 8%c. for Bar, 9c. for Pipe, and 2%c. for Sheet, less the usual discount to the trade.

Spelter and Zinc .- The scarcity of ore at the West and the unprofitableness of smelting it at ruling rates out there having compelled makers to considerably curtail production, greater strength is manifesting itself on this coast, and this feeling is, moreover, supported by the higher freight rates. Although little transpires, it is safe to advance quotations to transpires, it is safe to advance quotations to 61/4c. @ 63/4c., currency, for Domestic. Foreign is as yet quiet at 63/4c. @ 7c., gold, but may also be on the eve of an improvement, as some inquiry for special purposes of galvanizing seems to be at hand. The stock of Silesian is 50 tons. In England operators for a fall have latterly made quite an assault upon this metal, but this may but prove a prelude to better times coming in it as spring approaches. Sheet Zinc is dull at 81/4c., gold, for Mosselmann, and 81/4c., currency, for Domestic.

Antimony.—Varies a good deal in value, at

Antimony .- Varies a good deal in value, at the present moment, according to brand, the best being worth 13½c., gold, while the lowest Foreign would probably not bring over 13c., gold, in a good round lot. London re-

EXPORTS

Of Hardware, Iron, Machinery, Metals, &c., from the Port of New York, for the Week ending January 23, 1877:

1	Hamburg.	Quan. Value.	Business continues in much the same and
-	Quan. Value.	Grindstones 100 \$450 Machinery, cs. 8 606	Business continues in much the same con-
l	Machinery, cs. 25 \$3,695	Machinery, cs. 8 006 Spetter, slabs. 84 300	dition as on last week, although there is a
.	Hardware, cs 62 1,650		somewhat more hopeful feeling in anticipa-
. 1	Mf. iron, pkgs. 9 205	Lisbon.	tion of an early settlement of the electoral
8	Copper, cks 58 22,800	Pistols, case 1 82	
- 1	Ag. imp., pkgs 74 5,441 Pistols, cs 1 400	2 100000, 000001.	question. The weather has continued to be
ı	Wringers, cs 14 416	Argentine Republic.	very unfavorable to all outdoor operations,
1	.,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	Ag. imp., pkgs 682 11,488	and in many instances it has seriously inter-
. 1	Bremen.	Cutlery, cs 7 180	fered with business. In Chester, Pa., ship-
١,	Mach'y, pkgs. 17 2,150	Hdw., pkgs 102 2,317	1
.	Hardware, cs 13 529	Grindstones 100 90	building bas been entirely suspended, and it is
ı I	Ag. imp., pkgs 19 1,135		said upward of 2000 men are unable to work,
	Rotterdam.	Cuba.	entirely on account of the inclemency of the
1		Cop. fines, cs., 7 1,000	weather. Our own city front has been blockaded
- 1	Copper, cks 90 23,500 Mf. iron, pkgs. 1 250	Nails, kegs 651 2,494	
- 1	Mach'y oil, bbl 1 100	Ag. imp., pkgs 12 786	with ice, and it has been a difficult matter to
	Hardware, cs., 31 918	Railroad bars1192 10,300 Mf. iron, pkgs. 591 5,090	move large quantities of freight with prompt-
8	Machinery, cs. 96 1,372	Hdw., pkgs 202 4,812	ness and dispatch. In this connection we may
	Ag. imp., pkgs 15 900	Grindstones 90 98	say that the new line to New York via Bound
١.	Antwerp.	Machinery, cs. 17 912	
1		Porto Rico.	Brook has shown that it has special facilities
0	Machinery, cs. 1 275		for prompt transportation of both freight and
-	Liverpool.	Nails, kegs 40 100 Hdw., cs 27 351	passengers, and we hear strong expressions
	Machinery, cs. 13 2,881		of satisfaction from many leading firms who
	Met'l g'de, cs 3 346	Hayti.	
	Wringers, cs 5 240	YY 31 40 040	have used that line for their New York busi-
•		Mdw., pkgs 10 210	
,	Car wheels 46 460	Hdw., pkgs 10 310 Cutlery, cs 5 110	ness,
9	Car wheels 46 460 Pig iron, tons. 10 140		ness. The export trade of the city for 1876 shows
1	Car wheels 46 460 Pig iron, tons. 10 140 Brass g'ds, cs. 2 280	Cutlery, cs 5 110 Nails, kegs 171 560	The export trade of the city for 1876 shows
,	Car wheels 46 460 Pig iron, tons. 10 140 Brass g'ds, cs. 2 280 Ag. imp., pkgs 3 280	Cutlery, cs 5 110 Nails, kegs 171 560 Brazil.	The export trade of the city for 1876 shows an increase of upward of 60 per cent, as com-
	Car wheels 46 460 Pig iron, tons. 10 140 Brass g'ds, cs. 2 280	Cutlery, cs 5 110 Nails, kegs 171 560 Brazil. Hwd., pkgs 16 191	The export trade of the city for 1876 shows an increase of upward of 60 per cent, as com- pared with 1875, and its rapid growth gives
9 "	Car wheels 46 460 Pig iron, tons. 10 140 Brass g'ds, cs. 2 280 Ag. imp., pkgs 3 280 Lendon. Ag. imp., pkgs 43 1,895	Cutlery, cs 5 110 Nails, kegs 171 560 Brazil.	The export trade of the city for 1876 shows an increase of upward of 60 per cent, as com-
9	Car wheels 46 469 Pig iron, tons. 10 140 Brass g'ds, cs. 2 280 Ag. imp., pkgs 3 280 Lendon. Ag. imp., pkgs 43 1,895 Pumps, pkgs 41 2,600	Cutlery, cs 5 110 Nails, kegs 171 560 Brazil. Hwd., pkgs 16 191 Nails, kegs 50 190	The export trade of the city for 1876 shows an increase of upward of 60 per cent, as com- pared with 1875, and its rapid growth gives
9 7 9	Car wheels 46 460 Pig iron, tons. 10 140 Brass g'ds, cs, 2 280 Ag. imp., pkgs 3 280 Lendon. Ag. imp., pkgs 43 1,895 Pumps, pkgs, 41 2,600 Nulls, cs 5 70	Cutlery, cs 5 110 Nails, kegs 171 560 Brazil. Hwd., pkgs 16 191 Nails, kegs 50 190 United States of Co-	The export trade of the city for 1876 shows an increase of upward of 60 per cent, as com- pared with 1875, and its rapid growth gives evidence of being permanent. The shipments of beef appear to have been satisfactory, and
	Car wheefs 46 469 Pig iron, tons. 10 140 Brass g'ds, cs. 2 280 Ag. imp., pkgs 3 280 Lendon. Ag. imp., pkgs 43 1,895 Pumps, pkgs. 41 2,600 Nails, cs 5 70 Wire goods, cs. 15 550	Cutlery, cs 5 110 Nails, kegs 171 560 Brasil. Hwd., pkgs 16 191 Nails, kegs 50 190 United States of Co- lumbia.	The export trade of the city for 1876 shows an increase of npward of 60 per cent, as compared with 1875, and its rapid growth gives evidence of being permanent. The shipments of beef appear to have been satisfactory, and about 200 carcasses are sent by each steamer
	Car wheefs 46 460 Pig iron. tons. 10 140 Brass g'ds, cs. 2 280 Ag. imp., pkgs 3 280 Lendon. Ag. imp., pkgs 41 2,600 Nalls, cs 5 70 Wire goods, cs. 15 550 Mach'y., pkgs. 8 1,660	Cutlery, cs 5 110 Nails, kegs 171 560 Brazil. Hwd., pkgs 16 191 Nails, kegs 50 190 United States of Columbia. Cutlery, cs 109 6,878	The export trade of the city for 1876 shows an increase of upward of 60 per cent. as compared with 1875, and its rapid growth gives evidence of being permanent. The shipments of beef appear to have been satisfactory, and about 200 carcasses are sent by each steamer leaving this port. The import trade shows a
	Car wheefs 46 469 Pig iron. tons. 10 140 Brass g'ds, cs. 2 280 Ag. imp., pkgs 3 280 Lendon. Ag. imp., pkgs 41 2,660 Nulls, cs 5 70 Wire goods, cs. 15 550 Mach'y, pkgs. 8 1,660 Hdw., pkgs 160 4,437	Cutlery, cs 5 110 Nails, kegs 171 560 **Brasil.** Hwd., pkgs 16 191 Nails, kegs 50 190 United States of Columbia.* Cutlery, cs 109 6,878 Machly, cs 78 7,398	The export trade of the city for 1876 shows an increase of npward of 60 per cent, as compared with 1875, and its rapid growth gives evidence of being permanent. The shipments of beef appear to have been satisfactory, and about 200 carcasses are sent by each steamer
	Car wheefs 46 460 Pig iron. tons. 10 140 Brass g'ds, cs. 2 280 Ag. imp., pkgs 3 280 Lendon. Ag. imp., pkgs 41 2,600 Nalls, cs 5 70 Wire goods, cs. 15 550 Mach'y., pkgs. 8 1,660	Cutlery, cs 5 110 Nails, kegs 171 560 Brazil. Hwd., pkgs 16 191 Nails, kegs 50 190 United States of Columbia. Cutlery, cs 109 6,378 Mach'y, cs 78 7,398 Hdw., cs 74 2,937	The export trade of the city for 1876 shows an increase of upward of 60 per cent. as compared with 1875, and its rapid growth gives evidence of being permanent. The shipments of beef appear to have been satisfactory, and about 200 carcasses are sent by each steamer leaving this port. The import trade shows a
	Car wheefs 46 460 Pig iron, tons. 10 140 Brass g'ds, cs. 2 280 Ag. imp., pkgs 3 280 Lendon. Ag. imp., pkgs 43 1,895 Pumps, pkgs. 41 2,600 Nails, cs 5 70 Wire goods, cs. 15 550 Mach'y., pkgs. 8 1,660 Hdw., pkgs 160 4,437 Glasgow. Hardware, cs 4 100	Cutlery, cs 5 110 Nails, kegs 171 560 Brasil. Hwd., pkgs 16 191 Nails, kegs 50 190 United States of Columbia. Cutlery, cs 109 6,378 Mach'y, cs 74 2,937 Cartridges, cs. 69 2,537	The export trade of the city for 1876 shows an increase of upward of 60 per cent. as compared with 1875, and its rapid growth gives evidence of being permanent. The shipments of beef appear to have been satisfactory, and about 200 carcasses are sent by each steamer leaving this port. The import trade shows a slight decrease, attributable more to lower prices than to reduced quantity.
	Car wheefs 46 469 Pig iron. tons. 10 140 Brass g'ds, cs. 2 280 Ag. imp., pkgs 3 280 Lendon. Ag. imp., pkgs 43 1,895 Pumps. pkgs. 41 2,690 Nalls, cs 5 70 Wire goods, cs. 15 550 Mach'y., pkgs. 166 Hdw., pkgs. 166 4,437 Glasgow.	Cutlery, cs 5 110 Nails, kegs 171 560 Brazil. Hwd., pkgs 16 191 Nails, kegs 50 190 United States of Columbia. Cutlery, cs 109 6,378 Mach y, cs 74 2,937 Cartridges, cs. 69 2,537 Mf. iron, pkgs 105 688 Guns, cs 10 2,010	The export trade of the city for 1876 shows an increase of upward of 60 per cent. as compared with 1875, and its rapid growth gives evidence of being permanent. The shipments of beef appear to have been satisfactory, and about 200 carcasses are sent by each steamer icaving this port. The import trade shows a slight decrease, attributable more to lower prices than to reduced quantity. Among the changes in the Iron trade we
	Car wheefs 46 460 Pig iron, tons. 10 140 Brass g'ds, cs. 2 280 Ag. imp., pkgs 3 280 Lendon. Ag. imp., pkgs 43 1,895 Pumps, pkgs. 41 2,600 Nails, cs 5 70 Wire goods, cs. 15 550 Mach'y., pkgs. 8 1,660 Hdw., pkgs 160 4,437 Glasgow. Hardware, cs 4 100	Cutlery, cs 5 110 Nails, kegs 171 560 Brasil. Hwd., pkgs 16 191 Nails, kegs 50 190 United States of Cotumbia. Cutlery, cs 109 6,378 Mach'y, cs 78 7,398 Hdw., cs 74 2,937 Cartridges, cs. 69 2,537 Mf. iron, pkgs 105 688 Guns, cs 10 2,010 Zinc, glabs 131 526	The export trade of the city for 1876 shows an increase of npward of 60 per cent, as compared with 1875, and its rapid growth gives evidence of being permanent. The shipments of beef appear to have been satisfactory, and about 200 carcasses are sent by each steamer leaving this port. The import trade shows a slight decrease, attributable more to lower prices than to reduced quantity. Among the changes in the Iron trade we have to note the removal of Mr. F. Dundore to
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	Car wheels 46 469 Pig iron, tons. 10 140 Brass g'ds, cs. 2 280 Ag. imp., pkgs 3 280 Lendon. Ag. imp., pkgs 43 1,895 Pumps, pkgs. 41 2,600 Nalls, cs 5 70 Mach'y., pkgs. 8 1,660 Hdw., pkgs 160 4,437 Glasgow. Hardware, cs 4 100 Mach'y., pkgs. 31 4,077	Cutlery, cs 5 110 Nails, kegs 171 560 Brasil. Hwd., pkgs 16 191 Nails, kegs 50 190 United States of Co- tumbia. Cutlery, cs 199 6,378 Mach'y, cs 78 7,398 Hdw., cs 74 2,937 Cartridges, cs. 69 2,537 Mf. iron, pkgs 105 688 Guns, cs 10 2,010 Zinc, slabs 131 526	The export trade of the city for 1876 shows an increase of npward of 60 per cent, as compared with 1875, and its rapid growth gives evidence of being permanent. The shipments of beef appear to have been satisfactory, and about 200 carcasses are sent by each steamer leaving this port. The import trade shows a slight decrease, attributable more to lower prices than to reduced quantity. Among the changes in the Iron trade we have to note the removal of Mr. F. Dundore to
	Car wheefs 46 460 Pig iron. tons. 10 140 Brass g'ds, cs. 2 280 Ag. imp., pkgs 3 280 Lendon. Ag. imp., pkgs 43 1,895 Pumps, pkgs. 41 2,600 Nalls, cs 5 70 Wire goods, cs. 15 550 Wire goods, cs. 15 434 Glasyou. Hardware, cs 4 100 Mach'y., pkgs. 31 4,077 Canada.	Cutlery, cs 5 110 Nails, kegs 171 560 Brasil. Hwd., pkgs 16 191 Nails, kegs 50 190 United States of Cotumbia. Cutlery, cs 109 6,378 Mach'y, cs 78 7,398 Hdw., cs 74 2,937 Cartridges, cs. 69 2,537 Mf. iron, pkgs 105 688 Guns, cs 10 2,010 Zinc, glabs 131 526	The export trade of the city for 1876 shows an increase of upward of 60 per cent. as compared with 1875, and its rapid growth gives evidence of being permanent. The shipments of beef appear to have been satisfactory, and about 200 carcasses are sent by each steamer leaving this port. The import trade shows a slight decrease, attributable more to lower prices than to reduced quantity. Among the changes in the Iron trade we have to note the removal of Mr. F. Dundore to 39 South Third street, where he will conduct a banking and stock commission business in ad-
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IMPORTS

Of Hardware, Iron, Steel and Metals into

1	Hardware.	Order.
Car	rey Samuel,	Casks, 11
	Grindstones, cks.	, 62 Metals.
	Mdse. pkgs., 127	American Meter C
Liv	ingstone W. & F.	pany, Tin plates, bxs.,
Mo	Grindstones, cks. ulson John,	Byrne Jos. & Co.
	Cases, 6	Tin plates, bxs.,
W	ebusch & Hilger H	
	Co., Hdw., Cutl & Chains, pkgs	54 Tin, bales, 8
1	Mdse., pkgs., 5	Copper, baies, a
	Steel.	Naylor & Co. Tin plates, bxs.,
Dal	le John G.	Order.
No	Bundles, 7 ylor & Co.	Tin, slabs, 360 Tin, ingots, 600
410,	Tires, 4	Tin plates, bxs

COAL.

Yesterday two auction sales of Coal took place, the Pennsylvania Coal Co. selling 56,000 tons, and the Delaware, Lackawanna and Western R. R. Co. selling 100,000 tons. Prices at the Pittston sale were well maintained when compared with those of last month, and the bidding showed that prices were pretty well ertablished. Those who came hoping for a fall in prices were disappointed. The Coal of the Pennsylvania Coal Co. is deliverable at Weehawken, N. J. Freight to New York, 40 cents

per ton.	The following are th	e ngures:
Tons.	Jan. 24, 1877	Dec. 20, 1876.
8,700 St	eamer\$2.82%	\$2.82% @
16,000 Gra	ate 2.8234	2.82% @
7,000 Eg	g, average 2.88%	2.82% @
as 000 04-	0.44	0.40 0 0.400

Mr. Saward kindly furnishes us the particulars of the sale by the Delaware, Lackawanna dries or rolling mills, the recent pur-

and Western Railroad Co. The Coal is de- chases of Pig Iron, as we said before, indiliverable at Hoboken, with 40 cents freight to cate a degree of confidence which is very en

TAGM	I OIK.					
Tons.			14, 187	7. Av	g. Dec.	21, 1876.
12,000	St'mer	2.65	@		\$2.85	@ 2.87%
20,000	Grate	2.67	@		. 2.80	2 2.85
15,000	Egg	5.80	@ 2	85 2.8	3 2.87	% @ 2.92 W
40,000	Stove	8.45	@ 8	30 34	8 3.65	@ 3.67%
15,000	Chestn't	8.05%	@ 3.	11/23-1	0 3.30	@ 8.25

This shows a small falling off in the prices, say, perhaps, 10 or 15 cents upon the average. Most of the Coal was taken by dealers, consumers being lightly represented. The demand for Coal, however, is considerably better this week than last, and prices seem to be stronger. We hear of no changes or contemplated changes in the circulars of any of the com-The ice still puts an embargo upon navigation, and freights are prohibitory. We publish our table of quotations without change. It will be found upon page 24.

OLD METALS, PAPER STOCK, &c.

We have no definite change to report in the ondition of the Old Metal market since last week. Business is very dull, and prices continue nominally unchanged. In the Rag and Paper Stock market there has been a good demand for White Rags, Newspaper and Light Book Stock, and Manila and Grass Rope, Other articles are in little request. We quote the following as the current purchasing rates:

the following as the current purchasing rates:

Old Metals.—Copper, 16c. per lb.; Yellow Metal, 10c.; Brass, 9c.; Composition, heavy, 12c. @ 13c.; Lead, solid, 4½c.; Tea Lead, 4c.; Zinc, 4c.; Pewter, No. 1, 13c.; do., No. 2, 8c.; Spelter, 5½c.; Wrought Iron, \$20 per ton; Light do., \$10 per ton; Stove Plate, \$9 per ton; Machinery, do., \$12 per ton; Burnt Iron, \$4 per ton.

Rags, &c.—Canvas, Linen, 4½c. @ 5½c.; do. Cotton, No.1, 5½c.; No. 2, 2½c.; White, No. 1, 5c.; No. 2, 4c.; Colored, do., 2c.; Mixed, Weolen, 2c. @ 3c.; Soft, do., 5½c.; Gunny Bagging, 1½c.; Jute Butta, 1½c. @ 2c.; Kentucky Bagging, 3c.; Book Stock, 3½c.; Newspaper Stock, 2½c.; Waste Paper and Scraps, 1½c.; Kentucky Bale Rope, 4c.; Oakurr Jank, No. 1, 4½ @ 5c.; do. No. 2, 3c.; Tarred Shaking, 1c. @ 1½c.; Grass Rope, 3c. 2, 3c.; Rope, 3c.

PHILADELPHIA.

Office of The Iron Age, 220 South Fourth St., PHILADELPHIA, Jan. 22, 1877. Business continues in much the same condition as on last week, although there is a somewhat more hopeful feeling in anticipation of an early settlement of the electoral question. The weather has continued to be very unfavorable to all outdoor operations, and in many instances it has seriously inter fered with business. In Chester, Pa., shipbuilding bas been entirely suspended, and it is said upward of 2000 men are unable to work, entirely on account of the inclemency of the weather. Our own city front has been blockaded with ice, and it has been a difficult matter to move large quantities of freight with promptness and dispatch. In this connection we may say that the new line to New York via Bound Brook has shown that it has special facilities for prompt transportation of both freight and passengers, and we hear strong expressions of satisfaction from many leading firms who

Pig Iron .- The past week has developed a somewhat improved feeling in Pig, and a very considerable quantity has changed hands within the past 10 days. This improvement, as we have frequently noted in former instances, very closely follows a decline; it may or may not be permanent. After a decline buyers seem the Port of New York, for the week end- to take hold more freely, and sellers become firm at the reduced rates. The future, however, will still depend upon the consumption, and until that increases there can be no permanent improvement. A large quantity of Iron has changed hands during the week-probably 8000 to 10,000 tons to consumers, and it is said quite as much to outside parties. The latter statement we have reason to think is correct, but the parties to the transaction are naturally very reticent in regard to the matter, and no particulars or confirmation of the report can be obtained. We are glad to report so much business done among consumers, it shows there is something doing, and also shows a degree of confidence in values. Still it must be remembered that the large purchases of the last few days (consumers having supplied their immediate wants). may result in a depression for some time to come. As we said before, change of ownership makes very little difference, increased consumption is what we want. Increased consumption would necessarily cause an increased demand, but "a little spurt" like this does not necessarily imply that consumption is increasing. There is, however, more confidence in values, and an expectation that things will improve as spring approaches. Forge Irons have sold very freely; the pipe manufacturers are doing a fair business, and are pretty constant foundries are doing a little more business price they are still held, but buyers have retco, and without being able to report any special improvement, either at the foun-

couraging. The next few days will, no doubt, more fully develop the condition of the market. have prices firm or a shade higher. If the \$17; and Wrought, \$24 to \$26. transactions now reported prove sufficient to supply the needs of the trade for any length of time, the demand will again fall off, and we shall have another period of duliness and de to say which will prevail. The indications and likely to be offered at present prices, the demand must be larger than we have had the past three months. We make but a slight change in our quotations of last week, although we may say that sales have been \$6.50. made both above and below these figures, special brands bringing special rates, buyers of large lots, whose patronage is keenly competed for, have in some instances ob tained special concessions. We quote: No. o \$19.25, and Gray Forge, \$18 to \$18.50.

Blooms .- No change since our last. The market is dull and rather weak. We quote: Charcoal Scrap Blooms, \$45 to \$47; Charcoal Ore Blooms, \$40 to \$42; Charcoal Billets, of superior quality, \$55 to \$62; and Bars for converting into steel, made of best Champlain Iron, \$68 to \$70. Strictly Cold-blast Charcoal Blooms, hammered, are quoted \$58 to \$60, and Billets,

\$65 to \$67.

Ores .- Some sales amounting to about 4000 ons of Jersey Ores are reported at our quotations. Prices are rather weak. We quote as before: New Jersey Magnetics—Blue Bessemer Select (Broken), \$2.75, cash, f. o. b. Hacklebarney "Hoff"; Red (washed), for Foundry Metal, \$3.75 to \$4, f. o. b. Port Oram; Magnetic Lancaster Ore, suitable for Anthracite or Bessemer purposes, \$3 per ton, f. o. b. Baumgardner's Station, Pa.

Manufactured Iron,-We cannot report any improvement in the demand for Bars, and the market is about as dull as ever, with prices still on the turn downward. There ere no new features of interest, and we might repeat the remarks of last week, and at the same time cor rectly define the condition of the trade. The mills in the city are all at work, but the greater portion are running on Skelp, and one mill could easily supply all the Bars that are wanted. One of our prominent Iron merchants informs us that business in the Lehigh Valley is duller than ever, and that in a recent tour through that district he found, between Bethlehem and Scranton, only two mills (the Catasauqua) running. Some of the leading manufacturers still hold for 2.20c, to 2.25c, for Best Refined, but a good deal of business is done at 2.10c. to 2.15c. for good Iron, while 1.80c. to 2c. is about the price for ordinary brands. The market is very wregular, however, and it is impossible to quote with strict accuracy, but the above figires give the extreme range both ways.

Sheet Iron .- There is a little more inquiry and a moderate amount of business doing, considering the season. As in Bar Iron, the orders are small, however; and as there are no large orders on hand, the market relapses into absolute duliness unless orders come in daily. We quote No. 24 about 4c. as the ruling price.

Tank Iron continues in moderate demand. and although prices are low, there is a fair prospect of improvement at an early date. Skelp Iron is also in good demand, but prices are unchanged. We quote Tank from 2%c., upward, as to quality, and Skelp 2.25c. to

2.50c.

Steel Rails.-The feeling is somewhat firmer, and with inquiries for large quantities, there is a fair probability of increased activity at the mills, and it may be a slight advance in prices. The nominal quotation is \$50, which may be the ruling price, against \$48 to \$49 last week. There is no scarcity of work at any of the mills, but there is strong competition any business that comes in the market, in the face of which it will be difficult to secure an advance. Prices are very low, however, and it is expected that a good many additional orders will come in the market soon. Some narrow gauge railways are buying Steel Rails, and among Eastern companies the Vermont Central are about to relay their road with steel. Some few sales have been effected since our last in lots of a few hundred tons each, at \$49 to \$50, at mills, at which price we quote the market

Iron Rails .- Since our last there is no change of importance, and the market continues dull and inanimate, buyers and sellers alike waiting for a definite settlement of the political question. A Southern demand for Iron Rails seems to be assured as soon as confidence is fully established; meantime small sales are made at about our former quotations, viz. Ordinary Rails, \$34.50 to \$36; and standard brands, \$37 to \$38.50. Price according to quality.

Spikes .- There has been a little more busiess doing, but prices are without change. We quote: Railway Spikes, 2-25c. to 2-50c., and Mining Spikes, 4 to 41/2 by 1/4, 21/4e.; 4 to 41/4 by 7-16, 3c.; 81/4 to 4 by 3/4, 81/4c.

Old Rails .- Business in this article has shown a little more animation, and although prices are low, it has been possible to effect sales within the range of our quotations. Some lots of superior quality are held at extreme rates, but several sales of fair to good lots have been made at \$20.50 to \$21. We quote market steady, \$20.50 to \$22, according to quality.

Car Wheels .- Sales have been made within buyers of this class of iron. Some of the the past few days at \$19 to \$19'50, at which duced their bids to about \$18.

have been made at about a medium rate.

Scrap Iron .- There is no change to report, the limited supply enables holders to realize former quotations, but the demand is not very active. Sales are reported of all grades within If the demand is sustained, we shall doubtless the range of our quotations, say: Cast, \$15 to

Nails .- Business is still very limited, and quotations are as before, viz. : \$2.90 to the trade, and \$3.15 to consumers.

Tin Plates,-There is a fair business pression and further weakness in prices. In the present condition of affairs it is impossible an improvement is anticipated at an early date. We quote, in United States currency, jobbing favor some slight improvement in general business, but to absorb all the Pig Iron offering, Bright, \$8; I. X., 10x14, \$10.25; Best Charcoal Leaded, 28x20, \$14.50 to \$15; good Charcoal Leaded, \$14 to \$14.25; other good brands, \$13 to \$14; good Bright Tin for Cans, &c., \$6.50 to \$7.25; Coke Leaded, 14x20, \$6 to

Lead .- Offerings have been somewhat de creased lately, owing to the railroads being snowed up, but there are considerable quantities on the way, which are expected to arrive at an early date. Meantime, we report sales of 1 Foundry, \$20.50 to \$21; No. 2 do., \$18.75 Ordinary Pig Lend at from \$6.15 to \$6.25, and 50 tons Soft Missouri on private terms. Manufactured is very quiet. We quote: Bar, 8%c.; Pipe, 9c.; and Sheet, 91/4c., less 10 per cent. to the trade.

Shot-Quiet at the following quotations Drop Shot, 25 lb. bags, 9%c.; do., 5 lb. bags, 10%c.; Buckshot, 25 lb. bags, 10%c. do., 5 lb. bags, 11%c.; Conical Balls, 25 lb. bags, 10c. per lb., net; Bar Lead, 5 oz., % lb. and 1 lb. bars, 8%c., less 10 per cent. to the trade.

Old Metals .- The demand continues light, offerings in excess of requirements. We quote: Heavy Old Copper, 16c. to 16½c.; Light Tinned Copper, 14c.; Copper Bottoms, 13½c.; Heavy Red Brass, Jac.; Light Red Brass, 12½c.; Heavy Yellow Brass, 11c.; Light Yellow Brass, 10c.; Light Yellow Brass, 10c.; Heavy Clean Pipe Lead, 5c.; Junk Lead, 5c.; Tea Lead, Light Paper, 5c.; Tea Lead, Heavy Paper, 5c.; New Zinc Clippings, 4½c. to 4½c.; Old Sheet Zinc, 4c.; Yellow Brass Turnings, 8c. to 9c.; Red Brass Turnings, 10c. to 11c.; Plumbers' Lead Joints, 6c.

PITTSBURGH.

Office of The Iron Age, 20 Fifth Avenue, EPITTSBURGH, Jan. 23, 1877.

Pig Iron.—Business the past week was less active, the aggregate of sales reported being considerably less than that of the preceding week, although there were some sales made by outside sellers that were not reported. The general position of the market, however, remains unchanged. The inquiry is chiefly for small lots. There is no disposition manifested to anticipate future wants, notwithstanding the production is light and stocks are down lower than they have been here for several years. The stock of Bituminous and Coke Iron in the yards of commission merchants here, it is said, does not exceed 15,000 tons, and consumers have little or none, as they have been buying only to supply immediate actual wants for a year or more past. Holders of good Red Short Mill Irons are hopeful of being able to secure better prices before long, although consumers can see nothing in the market for the products to justify an increased cost of the raw article. Bituminous Coal and Coke Iron-No. 1 Foundry, \$24 to \$25, 4 mos.; No. 2, \$22 to \$23; Gray Forge, \$21 to \$22; White and Mottled, \$18 to \$20.

Manufactured Iron .- There is an increasing demand, and prices are hardening, but orders are not coming forward as freely as could be desired, and current rates are unsatisfactory as they afford little or no margin for profit. Some of our manufacturers, it is said, are refusing to contract for future delivery at current rates, and it is evident that hard pan has been reached and that jobbers or consumers need not be apprehensive about stocking Merchant Bars quoted at 1.90c. to 2c. : Sheet Iron, No. 24, 3.300.; Tank Iron, 2.90c. Hoop Iron 1.80c. rates.

Nails.-The general position of the market has not varied much during the past week: business continues quiet, although an improved demand is looked for within the next week or two. Jobbers both in the West and South have little or no stock; they have been holding back in expectation that the Western Association would reduce prices, and now that there is no prospect of a reduction they will, no doubt, soon commence to send forward their orders. Some of our manufacturers have established agencies with the seaboard, and our trade in that direction is likely to be much larger this year than ever before. No change in prices \$2.75, 60 days, for 200 kegs and upward, with 2 per cent. off for cash.

Horse and Mule Shoes .- Trade is only fair; prices unchanged. Shoenberger & Co. continue to quote in 100 keg lots at \$4.50 per keg for Horse and \$5.50 for Mule Shoes. Wrought Tubing .- There was a meeting

of the Manufacturers' Association in this city last week, but nothing of interest to the general public; no change made in the list or discounts There is considerable dissatisfaction in some quarters in regard to the action of the Association in making no discrimination between large and small buyers, and in giving the same discount to the latter that is allowed to the former. Steel .- There is a very fair degree of activity reported, and the mills are all in operation Some of them, it is said, are quite busy. There is still considerable complaint in regard to price. Cast Plow Steel quoted at Sc. : German Plew Steel, 61/2.; Tool Steel, 12c.

Scrap .- There is very little doing in the Scrap trade, but while the market is dull, prices are still maintained. No. 1 Wrought Scrap, \$25 per net ton; Old Car Wheels, \$22 per gross ton, 4 mos.

Coke .- The destruction of some 300,000 to 400,000 bushels by the breaking up of the ice Axles-are held at \$28 to \$30, and sales in the river last week, has stiffened the market somewhat, by reducing the supply, but prices remain unchanged-\$2.25 to \$2.50 per ton, delivered free on cars in Pittsburgh.

ST. LOUIS.

Messrs. Spooner & Collins, Iron commission agents, 409 North Third street, St. Louis, under date of Jan. 18, report the Iron market as follows: Our market remains in the same dull state as last reported. Prices unchanged and demand light. We quote same as last: CHARCOAL.

Missouri No. 1 Foundry	149 CA (A)	29.00-4	mos.
" No. 2 Foundry		23.00-4	
" Gray Mill	22.00 @	23.00-4	mos.
Hanging Rock No. 1 F'dry	25.00 @	26.00-4	mos.
No. 2 F'dry		24.00-4	
" Gray Mill		24.00-4	
Tennessee No. 1 Foundry		24.00-4	
		23.00-4	
Tion a a continua j			
" Gray Mill	25.00 @	23.00-4	mos.
COKE,			
Alice H. R. Ex. No. 1 F'dry	196:00 @	-4	mos.
No. 1 F'dry	25.00 @	4	mos.
" B No. 1 F'dry	24.20 @		mos.
" No. 2 F'dry	23.50 @		mos.
	23.20 @		mos.
	49.90 (G)		mos.
Chattanooga, Tenn., No. 1	00.00		
Foundry	25.00 @	, —	mos.
Chattanooga, Tenn., No. 2			
Foundry	23.20 @	-4	mos.
Chattanooga, Tenn., Forge White	22.20 @	-4	mos.
" White			
and Motiled	21.00 @	_4	mos.
and motivations	44 00 10		
STONE CO.	La		
	00. NO	60,00 4	

COLD BLAST CHARCOAL-All Numbers.

COLD BLAST CHARCOAL—All Numbers,
Hanging Rock \$35°00 @ 46°00−4 mos.
Tennessee. \$0°00 @ 33°00−4 mos.
Keutucky \$0°00 @ 33°00−4 mos.
Missouri. \$28°00 @ 30°00−4 mos.
Georgis. \$28°00 @ 30°00−4 mos.
Alabama. \$28°00 @ 30°00−4 mos.
Alabama. \$28°00 @ 30°00−4 mos.
Assorted Bar Iron. \$95°00 @ 30°00−4 mos.
No. 1 Wrought Scrap. \$95°00 @ 30°00−4 mos.
Heavy Cast \$10°00 @ 40°00

CINCINNATI.

Messrs. L. R. Hull & Co., under date of Jan. 20, write us as follows: Pro Iron,—We are able to note a somewhat improved demand, are able to note a somewhat improved demand, making sales within the past week quite satisfactory in amount, if not in price. The market at times has been almost active, and there has been a better general movement than for some time. As a general thing, although the stocks in the hands of buyers are small, they are restricting their purchases to a close hand-to-mouth policy, so that the increase is strictly legitimate, and not caused by any speculative tendencies. In the present delicate condition of the market, with light stocks and curtailed production, any great increase in the demand.

FORGE IRONS. Hanging Rock No. 1, Charcoll 100 (21.50 4 mos. Hanging Rock No. 1, Coke... 21.00 (21.50 4 mos. Hanging Rock No. 1, Coke... 21.00 (21.00 4 mos. Virginia, No. 1... 20.50 (21.00 4 mos. Ala, and Tenn., No. 1, Charc'l 20.50 (21.00 4 mos. Red Short, No. 1, Coke... 22.00 (23.00 4 mos. Cold Short, No. 1, Stonecoal.. 19.00 (20.00 4 mos.

CAR WHEEL AND MALLEABLE.

LOUISVILLE.

Messrs. Geo. H. Hull & Co., under date of Jan. 22, write us as follows: The market is dull, and on grades for which there is not much duil, and on grades for which there is not much demand, or an excessive supply, concessions have to be made to effect sales. We revise quotations accordingly, giving what may be considered the extreme inside, as well as the extreme outside quotations of the market. The usual time, four months, allowed on quotations below:

below:
HOT-BLAST CHARCOAL.
No. 1 F'dry, from Hanging Rock Ores. \$24.00 @ 25.00 @ 1.00
Tennessee Ores 20 00 @
HOT-BLAST STONE COAL AND COKE.
No. 1 F'dry, from Hanging Rock Ores. \$22'00 @ 23'00' 1 Mill, " "90'00 @ 21'00' 1 F'dry, from Alabama, Georgia and Tennessee Ores. 21'00 @ 22'00' 2 F'dry, from Alabama, Georgia and Tennessee Ores. 20'00 @ 21'00' 1 Mill, from Alabama, Georgia and Tennessee Ores. 20'00 @ - 00'00' No. 1 F dry, from Missouri Ores. 20'00 @ - 00'00' 1 Mill, " 23'00' 62'4'00' COLD-BLAST CHARCOAL.
Car Wheel from Hanging Rock Ores
and the same of th

RICHMOND.

Mr. Asa SNYDER, Iron Merchant and Furnace Agent, Richmond. Va., writes as follows under date of Jan. 22: Inquiry for Charcoal Pig Iron has increased since last report. Sales, however, continue light. No change in quotations: ontinue light. No enange in quotations:
irginia cold-blast Charcoal Pig Irons. \$28.00 @ 35.00
irginia bot-blast Charcoal Pig Irons... 24.00 @ 35.00
in hot blast Coke Pig Iron, No. 1 ex. 24.00 @ 35.00
in No. 3 ex. 19.00 @ 35.00
in No. 3 ex. 19.00 @ 35.00

BOSTON.

BUSTUN.

JAN. 20.—Pig is very quiet. Quotations are nominally \$21.50 to \$22 for No. 1 and \$19.50 to \$20 for Gray Forge, with shipping and other charges \$3 per ton additional. The stock of Pig in Pittsburgh is 18,500 tons less than at this time a year ago. There are now 69 furnaces in blast west of the Alleghenies, against 77 a year ago. Scotch Pig is easy. Bar is very quiet, quoting \$47 to \$48 for Refined and \$38 to \$39 for Common. Conner is very quiet, but is alightly firmer at to \$48 for Refined and \$38 to \$39 for Common. Copper is very quiet, but is slightly firmer at the close on account of the European news. Ingot Lake may be quoted at 193cc. to 133cc. for large lots. For Manufactured we quote: New Sheathing, 31c.; Boits and Braziers, 32c.; Yellow Metal Boits, 39c.; do. Sheathing, 21c. Lead is dull, and prices tend downward. The supply continues on the increase. We quote: Pig. 63cc. to 63cc., currency, for Domestic; Sheet, 9/c.; Pipe, 9c.; Tin Lingd Pipe, 163cc.; Bar Lead, 8/gc., loss usual trade or 10 per cent. discount. Astimony is quiet but firm at 133/cc. to 14c., gold, for Boston spot lots, and Spelter is weak and lower, closing at \$6.50 on the spot for 10 ton

lots. Tin continues very easy, and quotations tend downward. We quote: Straits, 17% to to 17%; panea, 19% to 20%; Refined English, 17% to 17%; gold. We quote Plates: Charcoal I. C., \$7 to \$7.50; Coke, \$6.10 to \$6.25; and Terne at \$6.75 to \$7.25, gold.-Commercial Bulletin.

CHATTANOOGA.

CHATTANOGGA.

Mr. S. B. Lowe, under date of Jan. 22, reports as follows: The continuation of stormy weather, with heavy falls of rain, has had a depressing effect upon the Iron producers. Charcoal furnaces are very much interfered with. Some of them will suspend operations until the weather breaks up, as the roads are simply impassible and stocks difficult to move. This, however, will not inconvenience them much, as their stocks of metal on hand are quite large, especially in the Forge grades, and as a general thing they are able to carry them without forcing sales. Should the prices tend upward, as is anticipated, a number of furnaces will go into blast in the spring, as everything is ready into blast in the spring, as everything is ready and been prepared with that in view.

No. 1 Foundry
Gray Forge 16:00 @ 16:50
HOT-BLAST CHARCOAL,
No. 1 Foundry, extra\$20.00 @ 21.00
No. 1 Foundry 18.50 @ 19.50
No. 2 Foundry
Grav Forge
White and Mottled 15.50 @ -
COLD-BLAST CHARCOAL.
Car Wheel Metal \$23.00 @ 28.00
Car Wheel Metal
Forge Metal
" extra standard 90 00 @ 33 00 Forge Metal 17 50 @ 20 00 Muck Bar 35 00 @
" extra standard 30 00 @ 33 00 Forge Metal 17 50 @ 20 00 35 00 @ — Cast Scrap, Heavy 15 00 @ —
Forge Metal. 27 50 60 62 33 00 Mick Bar 25 06 60 60 60 60 60 60 60 60 60 60 60 60
Car Wheels 17 00 0
Forge Metal 30 00 @ 33 00 137 00 138 00 148 00 148 00 00 148
Corpo Metal 30 00 @ 33 00 33 00 33 00 33 00 34 00 35 00 30 00 30 00 30 00 35 00 30 00 30 00 35 000 35 00 35 00 35 00 35 00 35 00 35 00 35 00 35 00
Content
carra standard 30 00 6 33 00 Carra standard 17 57 66 30 00 Muck Bar 17 57 66 30 00 Muck Bar 17 57 66 30 00 Carra Scrap Heavy 15 00 6 Carra Light 10 00 6 Old Carra Wheels 17 00 6 Old Ralls 17 50 60 18 50 No. 1 Wrought Scrap per lb., \$\frac{1}{2}\$ & Carra Brown Hematite Ore. 50 to 56 per cent.
Content

BALTIMORE.

Mesers. Wyeth & Brother, Iron and Steel merchants, 46 and 48 South Charles street, report us the following prices under date of Jan. 23: The business situation presents no important features of change for the past week. There is rather a more hopeful feeling resulting from the prospect of settlement of the presidential difficulties. This prevents any decided reaction from the quiet so long ruling. We continue to quote the market dull and unchanged:

AMERICAN REFINED BAR IRON.

1 to 6 wide by ½ to 1 thick. \(\) 2 15 to 3½ e. \(\) B

1 to 6½ wide by ½ to 2 thick \(\) 2 15 to 3½ e. \(\) B

Round and square, ordinary sizes, from

½ to 2 inclusive. \(\) 2 15 to 2½ c. \(\)

Hoop Iron, 1½ wide and upward... 3½ to 3½ c. \(\)

Band Iron, from 1½ to 4 in. wide... 3 to 3½ c. \(\)

Horse Shoe Iron ½ to 1 wide by ½ to ½

thick... 3½ to 1 wide by ½ to ½

thick... 3½ to 1 wide by ½ to ½

thick... 3½ to 1 wide by ½ to ½

thick... 3½ to 1 wide by ½ to ½

thick... 3½ to 1 wide by ½ to ½

thick... 3½ to 1 wide by ½ to ½

thick... 3½ to 1 wide by ½ to ½

thick... 3½ to 1 wide by ½ to ½

thick... 3½ to 1 wide by ½ to ½

thick... 3½ to 1 wide by ½ to ½

thick... 3½ to 8 to 10 wide by ½ to ½

thick... 3½ to 1 wide by ½ to ½

thick... 3½ to 8 to 10 wide by ½ to ½

Machinery Steel... 1½ to 8 to 8 to 9c.

T/½ to 9c.

T/½ to 8 to 9c.

T/½ to 9c.

T/½ to 8 to 9c.

T/½ to 9c.

T/½ to 9c.

T/½ to 9c.

T/½ to 9c. AMERICAN REFINED BAR IRON.

Mesers. R. C. HOFFMAN & Co., Iron and com-

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FOREIGN.

FRANCE,

(Moniteur des Interets Materiels).

(Moniteur des Interets Materiets).

Paris, Jan. 7, 1877.— Metals.—It will take another week ere trade in metals revives from the holiday lull; meanwhile the annual statistics give us simple food for reflection, especially as regards the visible supply with which we inaugurate the new campaign. Copper.—The supply on hand and to arrive in England and France amounted on the 1st instant to 42,335 tons, since when for the latter part of last month the charters on the West Coast are cabled to have been 2700 tons. This is a large amount, and is not calculated to revive confidence for the present. Prices are nevertheless sustained here, with little doing, as follows: Chill Bars, 200 france; Common ditto, 197-50; Ingots, 207-50; Best Selected, 210; and Pare Corocoro Ore, 200. At Havre, Copper is nominal, at the following rates: First Brands Bars, 197-50, Paris conditions: Good Current ditto, 198; and Lota and Urmeneta, 198-75. Prices remain firm at Marseilles, although little transpires; they quote as follows: Spanish, in elabs, 190; Red Tokat, 199; Small Refined Ingots, 197-50; Sheathing, 235; Boits, 240; and Yellow Metal Sheathing, 210. This.—Althouch a review of the past year shows that consumption is well able to cope with production, the visible supply in England and Holland remains as formidable as ever, and seemingly counteracts any permaent advers. and reliow means meaning, 10. This.—Atthough a review of the past year shows that consumption is well able to cope with production, the visible supply in England and Holland remains as formidable as ever, and seemingly counteracts any permanent advance in value. Very little has been done here, yet prices have been upheld. We quote Banca, deliverable at Havre or Paris, 207:50 france; Billiton, 202:50; Straits and Australian, 202:50; and English at Havre or Rouen, 203: Marseilles is quiet, and quotes Banca 219; Straits, 205; and Billiton, 200. Lead.—Up to within a week this metal has been exceedingly firm, but latterly it has taken a downward course, with the exception of special brands, which at a moderate freight are readily taken for China in England. The last few day's freight has risen, and we see nothing for the moment to uphoid any sort of Lead. We have been equally quiet here at 54:50 to 55 francs, according to sort. Pretty large arrivals of Spanish have dropped in at Havre and this kind. First Fusion, will not bring over 54:50 there. A good opinion is still maintained at Marseilles, based entirely upon the presumed impending conflict in the Easts. They quote: First Fasion, 53 to \$3:50; Second ditto, 52:50; and Sheet and Pipe, 59. Spelter,—The depression in this metal continues, owing to the sort of panic which is noticeable in: it in the English markets, where it is offered at ruinously low rates, both in the raw state and in sheets. We are paralyzed hero in consequence, and quote, nominally, between Havre and Paris, 56:50 to 57:50 francs. The coastwise arrivals at Havre have been unusually large. Marseilles finds it difficult to emerge from its topor. They quote old Resmelled 52 francs, and Sheet 75 to 76. Fron.—During the past year the importation of Foreign Pip has decreased considerably, while on the other hand Merchant and Sheet Iron has beet introduced from abroad in large quantities. Afange Pig is still sustained at 15 francs, which we consider a peoportionately high price. Several large transacti Galatz. Coal has been quiet on the whole, yet prices have not declined. The Pas-de-Calais complains a good deal, the Loire less so.

BELGIUM. (Revue Universelle).

BRUSSELS, Jun. 7, 1877.—Fron.—Little actual business can be reported for the week. The large Iron works have much difficulty in procuring orders of some importance, the few commands arriving being intended merely for supplying immediate wants. The dealers in the Iron trade, it should be mentioned,

however, carry but light stocks; if a revival in business should therefore manifest itself early in the spring, a certain rush for a replenishment could hardly fail to impart some buoyancy to the situation. Meanwhile buyers have got everything pretty much their own way, and our rolling mills, in particular, are willingly making large concessions to prevent their works from suspending operations altogether. The only activity that we can be receive is in the construction of machinery, especially for coal mines. Coal.—The demand for Coal has diminished so much latterly that most of our mines have curtailed production by not working on Mondays and Saturdays. On the one hand the winter is not particularly severe, and on the other foreign competition keeps prices at the lowest point.

drifts 15 feet deep for ten hours. In the "marches" of Hereford and Monmouth, in Derbyshire, Nottinghamsbire, Yorkshire, Lincolnshire, and most of the southern and eastern counties there is a great deal of water out. On one flat tract in Lincolshire, where crops grow in the summer, there is now a lake ten miles across, and a small serew launch is being run upon it. The damage done is very great.

A COLLIERY EXPLOSION took place last week at the Dowlais Company's Gellygaer Collery, in South Wales. Six men were very badly burned, the immediate cause of the accident being the careful searching for

GERMANY.

(Borsenhalle).

Hamburg, Jan. 6, 1877.—Metals.—The German markets emerge slowly from the holiday interruption. Copper.—The dealings have been insignificant, and there has been little or no fluctuation in the markets. Berlin is quiet at 81 to 85 marks the 50 kilos for good qualities of English and Australian. We are unchanged here, and quots, Minnesota 108; Quincy, 95; and English Tough Cake, 93. Tin.—Our markets have been rather weak in consequence of the unfavorable statistical position disclosed in England and Holland. Banca at Berlin sells at 82 to 82:50 marks and English Refued at 81:50 to 82:50. Here some arrivals are expected from Bolivia. Meanwhile Banca may be quoted 83 to 85, and English also 83 to 85. Lead.—Although at 81. Petersburg the market is still tolerably firm at 34 roubles the 164 kilos, Lead in the German markets has softened down considerably, and at Berlin Hattz, Tarnowitz and Saxonian are quoted 22 to 22:40 marks. Here German Refined to arrive is paid 22 marks; English Pig, on the spot, 23:59 to 24; and ditto Sheet, 24:50 to 20. Speter.—Hardly anything is done in Germany in this metal, and the quotation is altogether mommin, Silesian being quoted at Berlin 22:25 to 23:35. Here we have declined to 22:50, spot and to arrive.

HOLLAND.

HOLLAND.

(Koch & Vierboom).

ROTTERDAM, Jan. 3, 1877.—Tin.—There is still a tendency in production to outrun consumption, particularly as regards the supply from Australia, and there have been sold during the year at auction 140, 200 slabs against 136,763 in 1875. The deliveries have been 132,033, against 136,433 in 1875, teaving a stock on hand of 53,871, against 91,893 in 1875. Stock of Billiton 30,619 slabs, against 19,679. We quote Banca 45 and Billiton 44½. Business languid. Lead.—Trade in this metal has been tolerably lively in Holland during the past year, and German and Belgian have gradually advanced from 13½ to 13½ guilders. We quote Stolberg now 13 guilders. The arrivals in 1876 of German and Belgian have been 37,300 pigs against 30,000 and 36,000 in 1875 and 1874. Present stock 2000 against 2450 in 1875 and 1874.

NEW CALEDONIA.

Nounea, Oct. 31, 1876.—Nickel.—Groat activity prevails in the Nickel mining districts of this island, operations developing on a more extensive scale from one month to another. Late returns from consignments made to England have been most satisfactory, and hold out every inducement to the owners of our mines to introduce the very best of machinery procurable from abroad, for preparing the ore for shipment. Immigration into the colony is steadily on the increase, and the development of its ample and varied resources bids fair to spread prosperity among as much more rapidly than there was any prospect for when a couple of years ago the first discoveries of Nickel were made. In this city improvements are going on rapidly, and real estate is steadily on the rise. (La Presse.)

CHILI.

CHILI.

(Mercurio del Voper.)

Valparatso, Nov. 15, 1876.—Lead.—According to advices from La Serena, in the province of Coquimbo, Messra. Ramon Learos & Henry Sewell made shortly ago a trip to the old Silver-Lead mine, of Arqueros. From this mine they crossed everal mountain ridges with the view of inspecting the ancient and celebrated mine of Los Porotos, which is only three leagues distant from the town of Viena unigo Elque. The result of the inspection was so satisfactory that they took the necessary steps toward purchasing it of its actual proprietors. Neveral samples were taken, there being several workings that produce silver. The result of the assays made at Guayacan by Mr. S. Cosgrove gave the following leps: No. 1, 17 marks; No. 2, 23; No. 3, 63; No. 4, 76 marks of silver to the cajon. The Chilian mark is about \$10; 45 per cent. of Lead in the condition of carbonatesis more ories; the average arrived at by Mr. Sewell. The deed of sale was signed about a month after the inspection. As the proprietors know very well the value of the mine they held out for a very high price, which caused delay in the transference of the mine. We are informed that the proprietors have taken out 1000 quintals of ore for shipment in less than two months and with only four mer employed. To all appearances the mine is very rich. The elevation of the mine is only 4000 feet above the level of the sea; no snow falls. There is a cart road to within three leagues of the mine, and the 10st of the distance is through a ravine up to the canchas of the mine.

£22; E B charcoal, £24-all 30/, below the previous rates. Messrs, Baldwin's "Severn " sheets remain at £13 as before. These changes will doubtless have some weight with the meetings to be presently held, but the probable action of the "list" houses cannot very well be foreshadowed. Everybody, both in and out of the trade, is well enough aware that for some time past the list price, £9, for best branded bars has been merely farcical and nominal. Every vendor has done what he could to get rid of his productions; hence it is by no means strange that not only makers but merchants have been selling these goods at below the list" standard. Under such circumstances there is just a chance that the ironmasters may resolve to reduce the price of heat bars to £8 10/, with best sheets in the like proportion.

THE WEATHER

THE WHATHER
has been so wet and stormy since I last wrote
that at this juncture the country is flooded in
every part of the lowinds. It not only rains
every day, but all day and all night too. For
about six weeks past we have had little else
but continuous heavy rains, and the meteorologists this morning inform us that we are in the
center of a cyclonic area, and must look out
for further atmospherie disturbances. On
Wedneslay last there was a tremendous gale
and snow storm in the North, several trains on
the Midland Railway being snowed up in

took place last week at the Dowlais Company's Gellygacr Colliery, in South Wales. Six men were very badly burned, the immediate cause of the accident being the careful searching for fire-damp by a miner named Lloyd, who held a lighted candle in his hand.

Last YEAR'S SHIPBUILDING IN LIVERPOOL.

The total tonnage launched from the Mersey yards last year was somewhat below that of 1875, the aggregate of steam and sailing vescels for 1876 being 37,250 tons. Messrs. Bowdler, Chaffer & Co., of Seacombe, launched seven vessels, of which four were steamers, the total tonnage being 7338 tons. Messrs. Laird Bros., Birkenhead, launched or completed during the year eight vessels, with a total tonnage of 6150 tons, of which seven were steamers, including H. M. sloop-of-war Griffon. The troop ship Euphrates has also been refitted and repaired at Messrs. Lsird's yard, and the engines of H. M. S. Shannon have been renewed. The yards at the south end of Liverpool have been tolerably busy during the year. Messrs. W. II. Potter & Co. sent out 8474 tons in the form of eleven vessels, of which only one was a steamer. Messrs. Thomas Roydon & Sons have turned out seven vessels, one of which was a steamer, the total tonnage being 7610 tons. Messrs. R. & J. Evans have built four vessels, one of them a steamer, of the total tonnage of 4918 tons. LAST YEAR'S SHIPBUILDING IN LIVERPOOL. one of them a steamer, of the total tonnage of

NEW COMPANIES OF 1876.

Last year there were 75 new joint stock companies brought out with a total authorized capital of £11,877,000. Of these there were 23 manufacturing or trading; 32 miscellaneous (including 12 skating rinks), and the remainder there devoted to insurance, shipping, railways, hotels, mines, banking, investments, telegruphs and trainways. Nineteen existing companies offered £6,501,000 of new capital, and four foreign loans were floated for £3,594,915 worth of steek.

COMMERCIAL FAILURES OF 1876.

COMMERCIAL FAILURES OF 1876.

The year just ended was a somewhat disastrous period in this respect, the number of stoppages having been 2056, a total only exceeded in 1868 and 1869, when there were 2145 and 2315 respectively. Of last year's aggregate there were 57 in London, 87 in Liverpool, 28 in Manchester, 90 in other parts of Lancashire, 287 in Yorkshire (excluding Middlesboro' and Hull), 182 in Birningham and Midland iron district, 86 in Newcastle, Middlesboro', Hull and district, 90 in Bristol, Cardiff, Newport and Swansea, 379 in the rest of England, 133 in Scotland and 37 in Ireland. The following branches of wholesale commerce contributed the failures: Commission, yarn, &c., agents, 192; boots and shoes, 116; coals, 147; engineers, founders, iron, metal and hardware merchants and manufacturers, 243; manufacturers and merchants of woolens, worsted, elastics, silk, hosiery, &c., 151; merchants, 216; warehousemen, importers of foreign goods, &c., 136; and wines and spirits, 128.

SERIOUS FIRE NEAR BOLTON.

Even in the midst of floods we still have our Even in the most of noods we still have our little fires, and to no district can we more confidently look for them than to the cotton localities, which last week yielded us the destruction of the bleaching mills of Messrs. J. Smith, Jr., & Co., at Great Lever, near Bolton. The damage done amounted to £50,000.

Figure 1. Stands of Aqueros. From this mine and unite, of Aqueros. From this mine in the stands of Aqueros. From this mine is a dunite, of Aqueros. From this mine is the protection of the bearing of the impection was an attractory that the protection of the bearing of the many made at Ganacas by Mr. St. No. 45, 100,

There is now a stock of 110, 700 tons in Connai's stores, an increase of 1273 tons during the week. In respect of prices, Messrs. James Watson & Co. say: "On Tuesday the warrant market opened at 57/9, cash, and on Wednesday it receded to 57/6; since then the price has improved to 57/10, closing at 57/9, cash. Shipments last week were 4964 tons, against 5220 tons in the corresponding week of 1876." We quote:

	-				
	G1.			No. 1.	No. 3.
(3. M. B., at	Glasgov			58.6	56/6
Garteherrie,	49			65/	58/
Coltness,	m 6				58/6
Summerlee,	0.5				587
Langloan,	4.5			66/	848/
Carnbroe,	4.6			60/	58/
Calder, at Po	ert Dund	as		65/6	58/
Glengarnock	at Ard	rossai	n	64/	58/6
Eginton,	60				56/
Dalmellingto	m. **			59/6	36/6
Shotts, at Le				65/	59/6
Kinneil at I					55/
Meases	William	Co	lvin's	dreular	has not

Messrs. William Colvin's circular has not reached me at the time of writing. The prices current of John E. Swan & Bros., Limited, gives No. 1 Coltness at 69/; Glangarnock, 63/8, and Eglinton, 59/8.

CLYDE SHIPBUILDING OF 1876.

During the past year there were launched from the Clyde shipbuilding 'yards 266 vessels of an aggregate tonnage of 204,770, as against 276 vessels and 228,200 tons in 1875; 225 vessels and 268,800 tons in 1874; and 194 vessels and 268,800 tons in 1874; and 194 vessels and vessels aggregating 11,370 tons; 16 paddle steamers, 10,770 tons; 35 screw steamers, 73,840 tons; 10 hoppers, 2870 tons; 5 dredgers, 3900 tons; 10 hoppers, 2870 tons; 5 dredgers, 3900 tons; 10 hoppers, 2870 tons; 5 dwoden sailing vessels, 1000 tons; 6 wooden wooden sailing vessels, 1000 tons; 6 wooden were launched from The Trades of Birmingham Post are quiet, and are not likely to become brisk in the immediate future. The Birmingham Post says: "In most of the rough and heavy iron hardware branches manufactures are endeavoring to stimulate the demand by announcements of reduction in the price of nickel from 7/ to 6/ per pound, less 5 per cent.; about 14 per cent. in the price of iron wood screws; an increased discount of 5 per cent. on tinned hol-

barges, 1400 tons; 15 steam yachts, 2400 tons; and 14 sailing yachts, 340 tons. The war vessels were all for the British government. There are now on the stocks 102 vessels, being one more than at the beginning of 1876.

THE FAILURE OF MR. ALLOTT, SHEFFIELD,

The FAILURE OF MR. ALLOTT, SHEFFIELD.

The statutory meeting of the creditors of this gentleman was held last week in London, the labilities being shown to be £210,000, with assets of great but uncertain value. I have, on a previous occasion, referred to the American speculations of Mr. Allott, and have given a list of his creditors on your side of the Atlantic. To these latter and other persons the following passage from the receiver's report on the failure will be interesting:

"The Richland and Clear Creek estates in Tennessee and the Souke Creek Gan trop estate.

ure will be interesting:

"The Richland and Cicar Creek estates in Tennessee and the Sanke Creek Gap iron estate in Georgia comprise altogether about 40,000 acres of land and mineral rights, containing valuable coal and iron beds. These estates have cost Mr. Allott £132,000. The coal, ironstone and limestone are practically inexhaustible, and are of high quality. The new Cincinnati Southern Railway, now constructing, passes through and alongside this property for above 20 miles. It is expected to be completed within six months of the present time. This will place these estates in direct communication with the entire railway system of the United States, and will add greatly to their commercial value. The coal and iron ore is in immediate proximity, and presents unusual facilities for economical production. A prospectus has been prepared with the object of forming a company to purchase and develop these estates, based upon the reports of competent engineers who have visited and examined the properties; and it will be for the trustee and committee who may be appointed to consider, along with the mortgagees, the most desirable course to be adopted with the object of realizing these valuable properties.

There remains of unpaid purchase

Making a total charge upon them of .. 114,028 9 6 Mr. Allott's creditors took a very lepient view of the matter, as his private debts were only £14,000, and, having resolved upon liquidation, granted him his discharge.

TRADES OF SHEEFIELD

In the iron trade some branches begin the In the iron trade some branches begin the new year with but poor prospects, while in others the order books are fairly well filled, and work is assured for some months henceforward. To say, however, that there is any general activity would not be accurate, although it may be safely stated that the immediate future gives promise of a much better state of things.

For pig iron of local foundry brands the inquiry is good, so promising in fact that in some quarters preparations are being made for the religibiling of blast furnaces which have long been in a non-productive state. In North

asome quarters preparations are being made for the relighting of blast furnaces which have long been in a non-productive state. In North Lincolnshire, for instance, the new Appleby Iron Company have just completed and blown in their first blast furnace, and have a second one almost ready for being started. At other places in the same vicinity furnaces are being made ready for reworking, although at the close of the year there were only nine in operation out of the twenty-one in existence in that iron district. The progress of North Lincolnshire, which is now of the most essential service to the ironmasters of South and West Yorkshire, is marvelous, and well worthy of being recorded here. It was only in 1864 that Messrs, W. H. and Geo. Dawes, of the Milton and Elsecar Iron Works, South Yorkshire, built the first furnace there, yet by the end of 1876 there were twenty-one furnaces in operation, the make of pig iron having by the latter date increased to about 70,000 tons. The output of iron ore in 1866 was 175,720 tons, whereas the total for 1876 will, it is expected, reach over 600,000 tons. It is roughly estimated that the furnaces of North Lincolnshire used over 400,000 tons of South Yorkshire and Derbyshire coal.

In the immediate neighborhood of Lincoln, too, a marked development of the ironstone field is in progress, and it is more than probable that the opening out of the new line of railway from Lincoln to Louth will direct enterprise toward iron ore fields yet lying virgin near Donnington-on-Bain.

In the merchant iron branches there is still a quietude which will not be dispelved until quarterly meetings in other districts have been

plied with specifications. At Barnsley patent pistons and various colliery appliances are in request. At Leeds the steam plowing and locomotive works are tolerably well engaged, and at Bradford, Keighley &c., steam hammers, spluning frames, and the like are in good demand.

Cuttery is not in brilliant request, the best sale being for good table goods for the home and Australian markets.

THE DERBYSHIRE IRON WORKS.

THE DERBYSHIRE IRON WORKS.

The mineral statistics for Derbyshire for the year 1875 reveal one or two facts of interest. It is stated that there were in that year 15 rolling mills and 59 puddling furnaces. Of these the Sheepbridge Company had 1 mill and 9 double furnaces; Firth & Sons, Whittington, 3 mills and 18 furnaces; and the Butterly Company, 117 (?) mills and 59 puddling furnaces. There were 38 furnaces in blast, which produced 272,005 tons of pig iron and used 779,100 tons of coal. Of the whole number the Stavely Company had 7 furnaces in blast; the Stanton Company, 5; Sheepbridge, 4; Wingeworth, 3; Dawes, 3; Renshaw, 3; Butterly, 3; and Clay Cross, 3. The sales of coal by railway or canal alone reached a total of 7,091,325 tons, beside the iron making and other coal used locally.

low ware and coffee mills, and of 2½ per cent. on enameled hollow ware. Lath and wall nails have been reduced 2 per cent; forged nails in the Dudley district about 7½ per cent; cut nails about 10½ per ton, and reductions of various amounts are amounced also in horse-shoes, German silver, gold composition, plate and wire, etc. These reductions alone—and the list might be considerably extended—tell a tale of the shifts to which manufacturers are put to woo trade, for in very few instances is there any corresponding or proportionate reduction in raw material. The slackness appears to be almost exclusively in our export trade, as factors generally do not report any failing off in their turn over, though business in many intheir turn over, though business in many in

tors generally do not report any failing off in their turn over, though business in many instances is less profitable than it used to be, owing to the keepness of competition in the retail character of the individual orders. On the other hand, bad debts are less numerous than when trade was more buoyant, and in few byranches are the stocks heavy.

In the foundry branches there is a litte more business doing, and, after a long period of dullness, there is at length and improvement in the inquiry for jewelry. Builders' hardwares are in very fair request, and there is a very encouraging demand for brass foundry goods and locks. There is some little inquiry for Japanned ware, lanterns, bright tin goods, ivory buttons, railway and carriage lamps, hollow wares and steel pens. The pin trade is said to be suffering from the development of the American iron pin manufacture. Is this really the case, do you suppose?

suppose? SOUTH WALES AND MONMOUTHSHIRE continue dull all round in respect of the iron trade, although it is stated that there are signs of improvement at Blænavon, Ebbw Vale, Rhymney, Tredegar and Treforest. The tic plate trade is falling off, but prices remain steady so far.

THE METAL MARKETS

have remained quiet, with a depression in

prices.

Messrs. Von Dadelszen & North say: "Cop-Messrs. Von Dadelszen & North say: "Copper.—Chili bars are rather lower, business having been done in g. o. brands at £76 and £75. 10/. The closing quotation is £75. 10/ to £77. 10/, according to brand; ore and regulus, 15/ to 15/3. The charters for last half of December are telegraphed as 2700 tons. In Australian little has been done. Wallaroo is quoted £85. 10/; Burra, £84. The next public sale of Wallaroo is advertised for the 33d inst. Quantity and conditions will be given on Tuesday, the 9th inst. English is steady; tough, £81 to £85; select, £88 to £85. 10/. Tin has been inactive. Straits has been sold at £76 to £75, the nearest quotation for spot parcels being active. Straits has been sold at £76 to £75, the nearest quotation for spot parcels being £75, 10/. Australian, £74, 10/. English flat; ingots, £78 to £79; bars, £79 to £80. In Holland the market is quiet. Banca quoted £51.; Billiton, 44fl. Tin Plates—No change. Lead.—English pig is dull, and quoted £21. 15/ to £22, 5/. Sales of soft Spanish, without sliver, have been made at £21, 10/, ex ship, and £21, 5/f. o. b. Business to some extent has been done in soft silver lead, for Newcastle, at £21. 5. Spelter decidedly flat, and quoted £21. 5. been done in soft silver lead, for Newcastle, at £21. 5. Spelter decidedly flat, and quoted £21. 5/ for ordinary Silesian. Sheet Zinc is lower. At the the public sales this week, out of 125 tons only 50 tons found buyers, at £25. 2/6 to £24. 10/. Quicksilver was reduced on the 1st inst. to £8 per bottle, and again advanced the next day to £8. 5/, our present quotation. Antimony.—£56 for English star."

The Mining Journal remarks: "The new year has opened quietly for metals, our markets being devoid of speculation, and the demand

being devoid of speculation, and the demand strictly confined to bona fids requirements, which have been of a limited character. But strictly confined to bona fide requirements, which have been of a limited character. But this is nothing unusual about this time, as merchants are always busily engaged in balancing their books for the past year. Prices generally have been rather depressed, and the accumulation of stocks is not a very hopeful sign, especially when taken in combination with the bank rate, for if the state of trade with money at 2 per cent. does not strengthen prices it cannot be expected that any advance could take place under higher rates and with statistics daily becoming more favorable. The stock of Copper on the 1st inst. amounted to 43,335 tons, since which charters have been announced of 2700 tens for the last fortnight of December, and the quarterly sale of Wallaroo is announced for the Bd inst. The stock of Tim on the spot and for arrival is estimated at 10,186 tons, together with filliton, Bancs, &c., in Holland, 15,421 tons. The stock of Spelter in London and outports, on the 1st inst., amounted to 2780 tons."

The Cornish smelters' quarterly returns of the sale of copper one for the three months.

on the 1st inst., amounted to 2780 tons."

The Cornish smelters' quarterly returns of the sale of copper ore for the three months ending December 30, show that the total sold was 14,120 tons, which realized £61,079, an average of £4. 6/6 per ton. Of fine copper there were sold 943 tons 9 cwt. at an average standard of £105. 12/. At the Truro ticketing, on the 5th inst., 1420 tons of copper ore realized £6833. 18/, an average of £4. 9/ per ton, and 90 tons 10 cwt. of fine copper an average of £103.

Latest Liverpool prices are:

Iron: f. o. b. in Liverpool, per ton.

	£	8.	a.	Æ	8.	
Merchant bar	6	15	0.2	6	17	
Merchant bar, in Wales	6	5	0 @	6	7	
Staffordshire	7	5	0 @	9	15	
Ноор	8	0	00	9	0	
Sheet	9	5	00	10	0	
Nail rod		10	00	8	0	
Bar, best crown	7	5	00	8	0	
Boiler plates	9	5	00	10	10	
Tin Plates: f. o. b. an . Charcoal, I. C	£	8.	d. 0 @	£	s. 7	-
Copper: Delivered in 1	Live	rpo	ol, per	ton		
	£	8.	d.	£	B.	
Bolt and Sheathing	92	0	00	0	0	
Tile	85	0	00	0	0	
Tough cake	85	0	00	0	0	
Best selected	87	0	00	0	0	
I make the following ex	tra	cts	from	the	pri	C

I make the following extracts from the price current of Messrs. Henry Rogers, Sons & Co., London, Jan. 5, 1877:

"Copper.—The statistical position of copper for the close of the year cannot be said to be particularly satisfactory, but the present price is a moderate one, and there is ample margin for a fair advance should peace be declared, and a speculative inquiry spring up. The imports of copper taken from the Board of Trade returns for the 11 months of the 6 past years were as follows:"

tono	WS:			
EST	IMATED I	N FINE CO	PPER.	
1872. Tons. 76,915			1875. Tons. 72,129	1876. Tons. 71,720

foreign	, were:				
1871.	1872.	1873.	1874.	1875.	1876.
Tons.	Tons.	Tons.	Tons.	Tons.	Tons.
49,570	41,153	49,983	54,527	45,226	47,104
"The	stocks	of coppe	r on the s	pot on t	he 31st
	the sam				
1871.	1872.	1873.	1874.	1875.	1876.
Tons.	Tons.		Tons.	Tons.	Tons.
18,054	32,001	28,592	20,668	20,583	26,530
" The	stocks	includi	og afloat	and cha	rtered
were:					

were:	stocks	inciu	uing anoat a	nu el	nartered
1871. Tons. 30,054	1872. Tons. 41,991	1878. Tons. 35,868	Tons.	1875. Tons. 28,978	Tons.
			Chili to the	13th	Novem-
ber, in t	he same	year,	were:		
1871.	1872.	1873.	1874.	1875.	1876.

"The total charters of West Coast produce for the year, were 49,400 tons, against 48,700 tons in 1875. "The prices and stock on the 1st day of each month throughout the year were as follows:

		Stock including affoat and chartered.
	Stock on	Advised by
	hand.	mail only.
Price.	Tons.	Tons.
1st Jan., 1876£81/10	20,583	28,978
1st Feb., 1876 81	20,302	27,843
1st March, 1876 76	21,963	30,217
1st April, 1876 77	20,734	30,982
1st May, 1876 79/10	21,169	31,988
1st June, 1876 78	22,682	30,997
1st July, 1876 74	24,834	81,431
1st Aug., 1876 72	25,596	31,803
1st Sept., 1876 72	24,417	30,548
1st Oct., 1876 78	24,879	31,679
1st Nov., 1976 76/10	25,740	88,476
1st Dec., 1876 76	25,802	31,623
and 31st Dec., 1876 76/10	26,530	34,226

"Tin.—The demand during December was sufficient to maintain the prices quoted from day to day, but the amount of business done was not large; the violent fluctuations in the Indian Exchange makes a purchase in the Straits somewhat of a risky business; hence the changes in prices here are ruled very much by the rates for bills on the East than by demand. Australian in has brought good prices, but in English there has been much underselling, and at very low prices for some brands. The total values of tin plates exported to the end of November in the following years were: 1871, 42,662,814; 1872, 23,585,540; 1873, 23,724,292; 1874, 23,485,548; 1875, 23,442,553; 1876, 26,663,168. Spelter.—There would seem to be an utter collapse in this trade, but from what cause produced, it is difficult to say. The English smelters are almost without stocks of raw materials, and hence will not reduce their price, but in order to assist speculators for a full to trade to the range of the price, but no reder to assist speculators for a full to trade to the range of the price, but no reder to assist speculators for a full to trade to the range of the price, but no reder to assist speculators for a " Tin .- The demand during December price, but in order to assist speculators for a fall, a few lots of common Silesian brands are fall, a few lots of common Silesian brands are bawked about the market at ruinous prices from day to day, alarming consumers to such an extent that they will only buy for immediate wants. The trade in English spelter is thus virtually closed, while that for foreign is at the mercy of certain speculators who "rig" the market just to suit their own operations. Sheet zinc is in a depressed condition, and the auction sales of the London mills have of late failed to attract buyers to the full extent of the quantities offered. Lead.—The price of this metal was exceedingly firm throughout the greater part of December, but toward the close receded about 5/for common sorts. For special brands there was a good demand for China, and as freights ruled low, a fair trade was done. Freights have since advanced, and the demand has decidedly fallen off, but no considerable drop is looked for in lead." bawked about the market at ruinous prices

Lead Movement in 1876.

The following review of the lead market for 1876 is prepared by Edward A. Caswell, metal broker, No. 240 Pearl Street :

The Centennial year has passed away, with it all its expected remunerative business and large profits, in place of which we have seen a somewhat limited sale of goods, shrinkage of

large profits, in place of which we have seen a somewhat limited sale of goods, shrinkage of values, unhealthy competition, and small entries on the profit side. The decline in gold of nearly ten per cent. has added to the trials of importers and consumers, who purchased their raw material in coin; but at present writing this variable, speculative and troublesome factor bids fair roon to disappear from merchanta' calculations. With that point settled, the presidential muddle cleared up, and confidence reassured, we may fairly hope for the long expected reaction in business, and the much talked of "better times."

Pig lead has of course sympathized with trade in general, except that its decline has been proportionately greater than that of other articles, owing to the fact that the price had been previously sustained by large capital in strong hands, so that to the normal fall was added the margin of factitious advance. Within ten weeks the actual currency decline was nearly \$20 per ton; at the same time base bullion fell only \$12 to \$15 per ton, showing pretty clearly that refiners must either have made very large profits previously, or else are now working nearly at cost. Every one familiar with the figures knows the latter supposition to be correct, and that bullion must decline or lead advance to afford a reasonable profit.

The United States production of 1876 exceeded that of 1875 by 3967 tons, and the sup-

come or tead advance to afford a reasonable profit.

The United States production of 1876 exceeded that of 1875 by 3967 tons, and the supply of 1876 exceeded that of 1875 by 1483 tons. Stocks throughout the country January 1, 1877, were less by about 600 tons than in 1876, so that our consumption was apparently about 2000 tons more last year than the year before, but it must be noted that about 4300 tons of imported metal that figures in the supplies of 1876, was re-exported to Europe in the form of bullets, so that in reality the consumption fell off 2000 tons, while with a fair demand and ordinary increase of trade, it should have been an increased consumption of six to eight thousand tons.

sand tons.

The year has been devoid of any peculiarly new features in lead, except that we have clearly shown our capacity for a domestic production sufficient to render us entirely indeduction sufficient to render us entirely independent of any supply from foreign sources, and figures confirm the view that the supply must eventually be large enough to admit of exportation, for the mines thus far opened and worked are so few compared to the known and unopened rich deposits in Missouri and the far West that we may consider their capacity as almost illimitable; also the variety of sources is a guarantes of continuance which we would not have were we entirely dependent on two or three mammoth mines that might give out at any time; for although the Richmond and Telegraph mines together have turned out about one-sixth of the desilverized product, we can point to a dozen others that are scattered through Colorado, Utah, Montana, New Mexico and California that also have work in sight for some years.

which will assume more serious character in which will assume more serious character in the future. The Missouri ores are rich in lead near the surface, and prepared at slight cost, convenient to lines of transportation and a market, and worked in such a manner as to incur no risk or loss to the owner, so that production can only be checked when labor readily finds more remunerative employment in other occupations.

On the other hand, argentiferous ores carry less lead, are deep in the earth and must be extracted with greater risk at considerable outlay of capital, require an expensive treatment

less lead, are deep in the carth and must be extracted with greater risk at considerable outlay of capital, require an expensive treatment and pay high rates for transportation; but silt these drawbacks are paid for by the silver extracted, and render these ores dangerous competitors to Missouri.

The improvement in quality of leads used for corrosion has been very marked, and the desilverized brands have reached a standard that satisfies our most fastidious corroders, and precludes farther importation except at competion in price. Greater care and new methods of smelting have improved the quality, and rendered more uniform the Granby and several other brands of soft Missouri lead, and opened the way to an improvement in this respect which was greatly needed. It has also shown to Missouri smelters that the added cost of extra refining is more than covered by the enchanced price obtainable.

extra refluing is more than covered by the enchanced price obtainable.

The entire importation of the year, except a few hundred tons, has been for the manufacture of cartridges for re-exportation, so that the quantity of foreign lead consumed in this country is now reduced almost to zero, and the revenue to the United States government from lead this year cannot have reached \$50,000, while in 1870 it exceeded one and one-half million. It is natural therefore to expect that a government hungry for revenue will legislate so as to recover this last source of income, and it is equally natural that when convenient the bug-bear of reduction in tariff should be used to influence markets; and yet the whole question has been virtually settled by the production of this ceuntry, which has been so large that prices have fallen off simply from domestic competition, until our currency price is so low that Mexican hallon coming here in hond. that prices have fallen off simply from domestic competition, until our currency price is so low that Mexican bullion coming here in bond has been profitably exported to Europe, and our New York price stands to day more than one cent per pound below the price of common Spanish, laid down here duty paid. In considering a reduction in the lead tariff it is therefore our government that is placed in a dilemma and not the lead producers, for the tariff can be reduced one cent per pound and yet no lead would be imported. If then the tariff should be reduced to three-quarters of a cent per pound, we Imported. If then the tariff should be reduced to three-quarters of a cent per pound, we must shrink on the scaboard only \$5 per ton, and at the West nothing (freights being then an item), to compete favorably with foreign lead; and if the tariff should be reduced to half a cent per pound, we must shrink but \$10 a ton, and even that shrinkage would check production so slightly that the revenue at that low tariff would be extremely small, while a quarter of a cent duty per pound would be too insignificant to be proposed. Finsily, a free trade policy in lead at present would only cripple our productive powers and bring nothing into the treasury; and that suicidal course is in no wise to be feared. In the course of time, after many reverses, fluctuations, discoveries and improvements, lead will of itself naturally stand on a basis of free trade withnaturally stand on a basis of free trade with out the interference of legislation as the tenout the interference of legislation as the ten-dency of our markets sufficiently shows, al-though there may be brief seasons of active trade and short supply, when prices may tem-porarily approximate nearer to the price of foreign lead; especially should a less wallike situation in Europe permit an accumulation of lead there and a severe decline in their prices.

Movements of Lead in New York City.

California receipts. 2,900 5,029
Stock in first hands in New York
city Jan. 1, 1875, about
Stock in first hands in New York
city Jan. 1, 1876, about.
Stock in first hands in New York
city Jan. 1, 1877, about. 4,000 gross tons. 1,500 ** 700 **

Determining the Velocity and Leeway of Ships.

The determination of a ship's movement at a ime when regular observations are impossible is one of the most difficult but important duties of the navigator. Long experience may give a captain a very fair knowledge of the forces of oceanic currents, but usually it is a mere matter of good luck if his vessel escapes disaster from these causes. This danger arises nore frequently during fogs and at night than during clear weather and daylight, because in either of these latter cases the land becomes visible soon enough to admit of a correction of the ship's course. Dr. Schallern, of this city. has invented an apparatus which he claims will measure with accuracy the progressive motion of a ship and the lateral motion technically leeway. known as 41

Dr. Schallern's invention consists in the application of a tube fitted to the keel of the ship and open at the bow end. The tube is led into the body of the vessel, where it is attached to an elastic cylinder fitted with a movable top, formed by a brass plate. The pressure of the water in the tube when the ship is in progressive motion raises this brass plate and with it a brass rod to which it is attached. The rod passes into the captain's cabin, where it operates an instrument that indicates the water pressure in by the close of the year can be declared, and to be a moderate one, and there is ample marging and a face clustive legality of prince up.

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It is a moderate one, and there is ample marging and a face clustive legality of the specific or the specific or the same periods, including foreign, were:

Is 1872. Is 1874. Is 1875. Is 1875. Is 1875. Tons. Tons the pipe, and consequently the velocity of the

clean it. The variations of temperature of the water may create inaccuracies in the records of pressure, but the chief difficulties are those that would be caused by the fouling of the tube from various causes. Any apparatus for determining the direct motion and leeway of a ship must be movable and capable of being easily and quickly applied. That invented by Dr. Schallern does not strike us as being applicable for its purpose, although the leading idea in the general conception is a sound one.

Electro-Plating with Aluminium, Magnesium, Cadmium, Bismuth, Antimony and Palladium .- M. A. Bertrand has obtained deposits of aluminium on decompos ing with a strong battery a solution of the double chloride of aluminium and ammonium. A plate of copper, forming the negative pole, whitens gradually, and becomes covered with a layer of aluminium, which takes a brilliant polish under the burnisher. The double chloride of magnesium and ammonium in an aque ous solution is readily decomposed by the battery, giving in a few minutes strongly adherent and homogeneous deposits of magnesium upon a sheet of copper. It polishes readily. The battery must be powerful. Cadmium is best deposited from the bromide to which a little sulphuric acid has been added. It is then very coherent and very white, and takes a fine polish. The sulphate, if acidulated, also gives an immediate deposit of metallic cadmium, very adhesive, and capable of a fine polish. Bismuth is deposited from a solution of the double chloride of bismuth and ammonium upon copper or brass by the current from a Bunsen element. It is very adhesive; though mat, it is capable of taking a fine polish, and may be introduced in the decoration of objects of art. Antimony can be deposited from a solution of the double chloride of antimony and ammonium at common temperatures. It frequently serves to replace platinum black in a number of fine art manufactures. Deposits of palladium are obtained with ease by means of the double chloride of palladium and ammenium, either with or without the battery. The solution must be perfectly neutral. - Comptes Rendus.

The attention of the French Academy of Sciences has been called to a recent invention perfected by M. Jablockhoff, which bids fair to bring the electric light into common use. The most delicate part of the electric light apparatus has been the adjustment of the distance between the carbon points, and it is here that M. Jabiockhoff steps in from quite a new path. Instead of placing the carbons end to end he places them parallel with each other, and separated by some insulating material. The whole is then placed in a cylinder of refractory material in the form of a double carbon wicked candle. By this arrangement the two carbons burn by their extremity, there being no necessity for regulators, as the insulating material keeps them at a constant distance. This material, as well as the cylinder, is consumed in the same time as the carbon, its volatility augmenting the light. Previous to this discovery it was necessary to have a regulator for each lamp, and at great cost, but now a single source of electricity may feed a number of burners, thus permitting the most effective distribution of the light.

The curious discovery, says the Scientifle American, is announced by Prof. P. B. Wilson, of Baltimore, that minutely pulverized silica is taken up in a free state by plants from the soil, and that such silica is assimilated without chemical or other change. The experiment consisted in fertilizing a field of wheat with the infusorial earth found near Richmond, Va. This earth, it is well known, consists of shells of microscopic marine insects, known as diatoms, which, under strong magnifying powers, reveal many beautiful forms that have been resolved, classified and named. After the wheat was grown Prof. Wilson treated the straw with nitric acid, subjected the remains to micr scopic test, and found therein the same kind of shells or distoms that are present in the Richmond earth, except that the larger size shells were absent, showing that only silica pa ticles below a certain degree of fineness co ascend the sap pores of the plant.

The contract price to be paid by the A miralty to Messrs. Penn & Sons, of Greenwic for the engines, shafting and propellers, bot ers, etc., of the twin screw armor clad North ampton is, we understand, £95,500. For the supply of the engines and machinery of He Majesty's ship Agamemnon, the contract for which has just been obtained by the same firm the cost is to be £90,000. Messrs. John Elde & Co.'s contract price for the engines, boiler and other machinery of the Inflexible was full £120,000, which is, we believe, the largest sur ever paid for the engines of a single ship.

The trial of the Waterwitch gunboa fitted with turbine hydraulic propeller, on th plan of Mr. M. Ruthven, is an event of grea The vessel is a sister ship to th Vixen and Viper, armor-plated gunboats. Th trial was most satisfactory, nearly one-third o a knot increase of speed having been obtained with somewhat less indicated horse-power, and it is evident that by lowering the turbine to nearly a level with the bottom of the vessel still greater advantage will be obtained.

Sideraphthite is the name of a new iron amal ram which is composed of 65 parts iron, 2 nickel, 4 tungsten, 5 aluminum, 5 copper. I resists sulphureted hydrogen, is not attacked by vegetable acids, and only slightly by minera acids. It is really more useful than standard silver, while it can be produced at a cost no exceeding that of German silver. For alloys which have to be silver-plated to prevent oxida tion, the inoxidizable iron, as the above i called, is stated to be a perfectly successful

The Coal Market.

Anthracite.

	Lump.	Steamer	Broken.	E 666	Stove.	Chestnut,
NNSTLVANIA COAL ton additional.	co., at N	le a	York t We	, 40 c	cents ken	per
ttston	3.00	3.00	8.00	3.10	3.60	8.36
CLAWARE AND HUI	son car	VAL.	CO.,	at '	Weel	haw.

Lackawanna..... 3.00 3.00 3.00 3.00 3.80 3.80 LEHIGH AND WILKES-BARRE COAL CO., f.o.b, at Port Johnson, N. J.

DRLAWARE, LACKAWANNA AND WESTERN, at Hoho-ken, N. J.—Auction, Nov. 23. Scrantou.... 2.77% 2.70 2.67% 3.59% 3.27% FREDERICK A. POTTS, 110 Broadway, New York.— Port Johnson, Elizabethport and Hoboken.

3 :00 3 :00 8 :75 3 :35 3 :00 3 :00 8 :75 3 :25 3 :75 3 :25

Snamokii 8.75 3.25 East Spring Mountain Lehigh 8.75 3.25 8.25 8.25 8.75 3.25 A. s. swords, 111 Broadway.-Coal at Newburgh. Pittston Coal... 3.00 3.00 3.00 3.10 3.60 3.35

G. B. LINDERMAN & CO. No. 111 Broadway. Sugar Loaf, (Lehigh).... 8 75 ... 3 25 8 25 3 75 3 50

MEEKER & DEAN, 111 Broadway. Church streets.—F. o. b. at Perth Amboy.

Church streets.—F, o. b. at Perth Amboy.

Spring Mountain Lehigh. 3-75 ... 3-25 3-25 3-75 3-75 3-59

Spring Brook Lehigh. 3-75 ... 3-25 3 25 3-75 3-75

Jeddo Lehigh. 3-75 ... 3-25 3 25 3-75 3-50

Highland Lehigh. 3-75 ... 3-25 3-25 3-75 3-50

Wyoming White and Red
Ash... (Wilkesbarre). 3-50 3-25 3-15 3-15 3-85 3-50

Centralia ... 3-50 3-25 3-15 3-15 3-85 3-50 A. PARDEE & co, 111 Broadway, Room 34.—F. e. b. at Perth Amboy and Hoboken,

Bituminous.

Cumberland, at Georgetown.

West Virgins, at Baltimore.

Kittaning f. o. b., Baltimore.

Newburg Orrel, at "

Despard, at Baltimore.

Broad Top, at South Amboy.

Morrisdale, Wigtons.

Cunard.

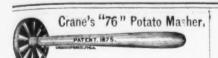
" at Philadelphia.

Consolidation Coal Co. f. o. b., Georgetown. @ 3·50 town...... Consolidation Coal Co. f. o. b., Baltimore.
In barges at New York.
Maryland Coal Co. f. o. b., Baltimore.
Waryland Coal Co. f. o. b., Georgetown

London Metal Market.

(From The Mini	ng J	ourne	21.)		
Iren	. 8.	a.	£.	8.	d.
Scotch, all No. 1 2	18	8	3	10	6
Bars, Welsh, f. o. b. Wales.		0	6	7	6
	63	0	10	0	0
" Swedish, London 10	10	0	11	10	0
Railway Chairs	10	0	_		
Spikes	-		_		
Plates, Staff., in London 9	. 5	0	_		
Nail Rods, Staff'd in L'ndon 7			8		0
	-		90		٥
Ditto cast 25	0	ŏ	45	0	0
Ditto, fag. ham		0	19	10	0
Lend.		0	-	-	0
Ditto, LB 22	5	0	-		
Ditto, Sheet and Bar 28	8	0	=		
Ditto, Pipe 23	10	0	94	0	0
Ditto, White 29	0	0	29	10	0
Spanish	10		35	0	0
Quickstiver.	rs.	0			
Silesten or Phontoh	_	-	_		
Ediginal Cwales, 23	10		-		
Tin.	0	0	26	0	0
English, ingot, f. o. b 78	6	0	79	0	8
Ditto Refined 81	0	19	83	Ü	ŏ
Distribution	0	0	_		
	6	0	- Charle		
Tough Cake & Ingot 81	0	0	82	0	0
Sheets and Sheathing 87	ĕ	0	84 87	10	0
	10	0	96	0	0
Burra, or P.C.C 88	10	0	84	0	0
Chill bars, g. o b	10	0	75	0	0
Phosphor Bronze. Bearing Metal	0	0			
	0	Ö	140	0	0
Wire 0	0	934			914
Sheets	0	84	0	0	916
Yel. Met. Sheath. & Sheets. O	0	79	0	0	814
'Tin Pintes-F box.					-
onarcoai	3	ő	1	4	ö
Cokelst quai. 1	19	0	1		0
Black ton. 17	0	ő	17	10	0
Liverpool	0	0	18	10	0
Black Taggers, 450 of 14x10. 30	0	0	-		
0s. per ton less for Canada : I	68. 1	er b	OX IN	ore t	has
C quoted above, and add 6s. for	or eac	h X.	Ter	ne pla	100
	Fram. Fig. aws. 1.0. 2	Press	Press	Pig. 6MB, f. O. b., Clyde. 2 18 6 3	France

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[Accompanying engraving represents the Springfield Bridge, built by the Leighton Bridge and Iron Works.]

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Trusting the trade will fully appreciate our recent efforts, both in improvements on the Wrench and in the adoption of a Trade Mark, we would caution them against imitations. None genuine unless stamped

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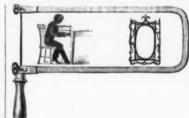
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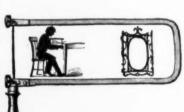
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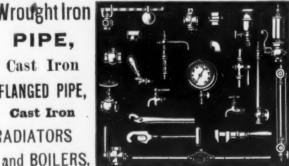
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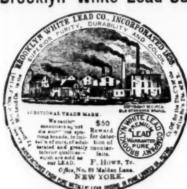
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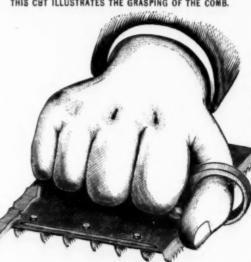
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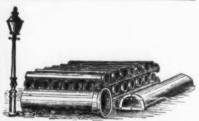
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Coal Co., h Valley Co... 111 Broadway, N. Y. a A. & Co.. 111 Broadway, N. Y. Conoken Coal Co., Jersey City, N. J. N. Y.
N. Y.
N. Y.
Pardee A. & Co.. III Brondway, N. Y.
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Hornboatel Chas., 56 Br adway, N. Y.
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Carn Shee Co. Seneca Falls, N. Y.
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The Brown Cotton Gin Co., New London, Cons.
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Schen, Manufacturers of the Co., 80 Chambers, N. Y.
Mickel Cutlery Co., 49 Chambers, N. Y.
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Bursinghaw Aaron, Peoperell. Mass.
John Rossell Cutlery Co., 50 Chambers, N. Y.
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Heller & Broa. Newarts. N. J.
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Johnson & Bro., I. Commercial, Newarts, N. J.
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N. Carolina Handie Co., 25 Louis, Mo.
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Chackendush, Townsend & Co., 36 Reade, N. Y.
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Blage Bros, Hardwayer Co., Unionvelle, Ct.
Latterprase Mig. Co., Thia.
Bray Goo, Buffalo, N. Y.
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Ocacen Walloc. 48 Broadway. N. Y.
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D. R. Barton Tool Co., Greenfield Mass.
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Planes, Manufacturers of
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Kilver & Tappen, Boston, Mass.

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Rumsey & Co., Sencea Fails. N. Y.

Union Mfc. Co., 98 Chambers, N. Y.

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Cleveland Rolling Mill Co., Cleveland, O.

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Thorn Geo., 151 Centre, N. Y.

Timme's Son Peter, Si North 8th, Brooklyn, E. D.,
Thorn Geo., 51 Centre, N. Y.
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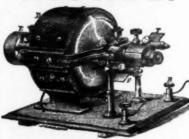
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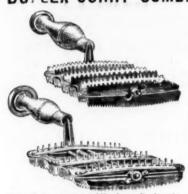
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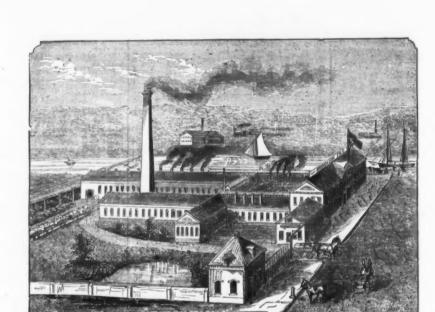
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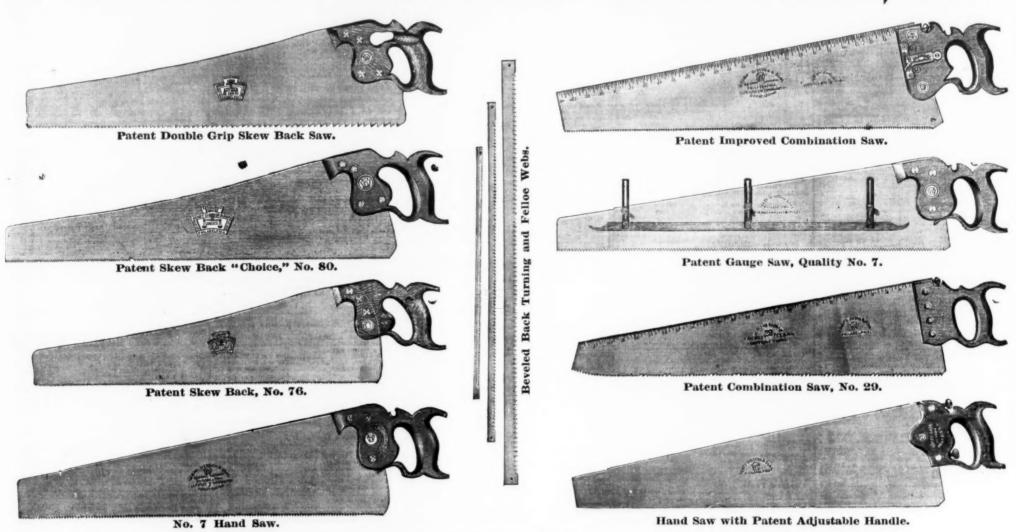
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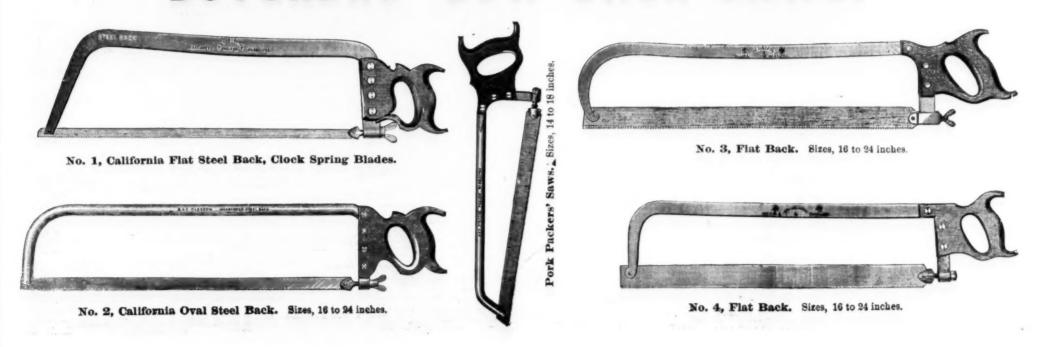
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ast Joint, Narrowdis 28&12% \$	Drill Chucks. Dabbury
ast Joint, Broad, Japanned, dis 30&124 oose Joint dis 45&12% Japanned dis 45&12% oose Joint dis 45&12% for	# Adjustableeach \$10.00, dis 30 \$ Rgg Beaters. Monroe's
oose Pin, no Acorn. dis 42/6/12/5 cosh. Acorns. dis 406/12/5 5 Japanned dis 506/12/5 5	Dover. # doz \$5:00 40 2 \$5:00 41 20 \$ National # doz \$4:50 dis 20 \$
Union Mfg. Co. 8 Fancy Butts [gured Knamered Loose Joint. dis 55&10 5 soton Finish, Plaisdis 80&10 5 "" with firen Acorasdis 75&10 \$ "" with filed "" dis 65&10 \$ 1	Drill Chucks.
### WEOUGHT HON.	Enameled and Tinned Ware.
oose Joint, Broad	Tinned Saucepans. dis 30 & 35 % Escutcheons. Door Lock. Same discounts as Door Locks Brass Thread. dis 60&10 %
cose Pin. Wrt. dis 40&5 % m. Spiral Spring Butt Colist May 1st. dis 25 % nion Spring Hinge Co. dis 20 % nion Mg. Co. Spring Hinges dis 20 %	Wood dis 25 % Faucets. dis 50 % Fenn's dis 40 % " Cork Stons dis 40 %
Ind Butts Parker .	Star. dis 55&10 % Frary's Patent Petroleum dis 20&10 % Wood and Metullic dis 40 % Wood, Cork Lined dis 65&10 %
** Lull & Porter. dis 60 5 ** Nicholson. dis 45&10 5 ** Huffer. dis 33½&10 8 ** Garrerson. dis 60&10 €	Enterprise Mfg. Co., Self-Measuring
Clark's Nos. 1, 3 and 5	Arcade File Works. \$5.00 to £ currency Anburn File Works. \$5.00 to £ currency C. B. Paul's. \$5.00 to £ currency Heller & Bros \$5.00 to £ currency
Can Openers. per doz \$3°00 dis 20 essenger's Comet. per doz 2°25 dis 50 % merican per doz 3°35 dis 20 yman's per doz 3°35 dis 20	Brass Turead
0. 4. French	J. & Riley Carr
" Sargent's dis 70æ5&10 5 Can Openers. easenger's Comet	Fisher s. 4 75 to & gold Moss & Gamble. 4 75 to & gold Thos. Turner & Co. (Peter A. Frasse & Co.) 4 50 to & gold "Horse Rasps. 5 00 to £ gold
CapsPercussion, per 1900. 37 & 40c	H. Disston & Sons
" D. W. P. \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(Mrs. Coles
108, 90c, gold	Peerless, 4-inch Rolls 400 each net 5 10 each net 5 10 each net 6 10 each net 6 10 each net 6 10 each net 7 10 eac
Cartridges.—Metallic. dis 57% @ 60 % Cartaidges.—Metallic. dis 30&10 % Carta.—Horse and Curry. dis 30&10 % tton dis 10&20 %	" " 8" S 15 each net " 8" 4 90 each net Champion, 6 inch roils
OBF reas Horse and Curry dis 30-610 %	Empire 4 00 each net Eureka, No. 1, 7-inch Roll 5 75 each net No. 2, 5-inch Roll 5 00 each net Defiance 4 in, 38-50 6 in, 34-00 8 in, 36-50 each net
Cinsters. cd. dis 45 @ 50 % cate and Shallow Socket. dis 55 % cep Socket. dis 40 %	K. F. M., 44; inch Roll
eep socket	Madden & Cocksyne File Co. \$00 to £ college of the
	Keystone Portable Forge Co. dis 40 % Forks. dis 35 % Hay, Manure & Spading. dis 35 % Plated A 1. dis 40 & 5 %
race, 6%-10-2by the cask, \$\pi\$ pair, gold 50 \(\alpha\) 57c race, 710-2by the cask, \$\pi\$ pair gold 55 \(\alpha\) 57c erman Halter Chain	Revision
erman Coli. dis 25 % gold alvanized Pump Chain. b 10% di 11c. lek Chain Iron. dis 55&10 % Brass. dis 45&10 %	Fry Fans. Burnished, F. S. & W., new list
	Marking dis 48-55
Alte Crayons. (Chisejas. R. Barton Tool Co. (all kinds)	No. 0 2 8 4 5 7 8 Gauges Marking. dis 454:10 3 "Star. dus 55 7 Wire. this Patent per doz \$18:00, dis 40 5 Gimeles. Nail and Spike. dis 33/46:40 3 "Bee" Gimiets. per gross, \$12:00, dis 40 5 Double Cut, Shepardson's dis 20 3 "Hartwell's dis 40 40 4 "" Hartwell's dis 40 40 4 "" Douglass' dis 254:10 4 Gime Pots.
Buck Bros new list dis 17% @ 20 % Hart Mtg. Co., No 1dis 60&10 % Mer rill	" Ives" dia 27 5 " Douglass" dis 25 & 10 \$ Glue Pots. Tinned and Knameled dis 35 \$ 5
### Harr Mig. Co., No 1. dis 60&10x10 x Merrill	Family, Howe's "Eureka" dis 25 % " L. F. & C.'s "Handy" dis 25 % Grind Stone Fixtures Sargent's Patent dis 70&10 \$
Merril dis 60&10 \$	Reading Mardware Co. dis 70&10 \$ Hart Mrg. Co.'s dis 60&0&0 10 \$ Rick Bros. dis 45&5 \$ Hammers.
nged Firmers, extra. Buckers \$5.23 to £ gold Newnonid's \$5.00 to £ gold Spear & Jackson's \$5.00 to £ gold Buck Brok Shank \$5.50 to £ gold Buck Brok Shank \$5.50 to £ gold	" Ives" dis 25 s. dis 25 c. dis 25 c
Butchers Sewmond's Sevent De gold Spear & Jackson's Sevent De gold Glamps Buck Bros (Shank) Sevent De gold Clamps On, Providence Tool Co. 's, Wrt. Iron. dis 25 & Adjustable, Gray's dis 30 & Show's dis 30 & Show's dis 40 & Show's dis 40 & Show's dis 40 & Show's dis 40 & Cabinet, Sargont's dis 60 & 10 & Clips, Agle. dis 50 & 10 & 10 & Clips, Agle. dis 60 & 10 & Clerkeys dis 60 & 10 & Ceckeys dis 60	Henry Hammonds
Hammer's dis 20 %	Hand Cuffs and Leg Irons. Tower's Hand Cuffs, \$4 00 per pair
orway or Best	Handles. Door or Thumb Latches— Nos. 0 1 2 8 4
raas Racking	Per doz \$0.80 1.00 1.18 1.35 1.50—dis 60&10 \$ Roggin's Latches
Coffee Mills. prd and Box	Surface Chest dis 65d:10d:10 % Flush Chest dis 60d:10d:10 % Lifting dis 60d:10 % Saw and Plane dis 25d:10 %
merican (Enterprise Mrg. Co.)	Boynton's X Cut (Loop) dis 20 s
Compared Call Co.	Hickory Firmer Chisel, ass'td 525 Apple "ass'td 600
Contractor Con	Socket " ass'td " 430 dis 40 5 Fig. 7 and
Corn Knives and Cutters. adders	Patent Auger, Ives' large 8 00
on. steel points	Providence Tool Co. 's Hand Cur's. \$15 per doz
ar ing Tongs.	"Anti-Friction" No. 1, \$1.25; No. 2, \$1.50 \(\text{ pr.} \) dis 40 \(x \) Noveity \(x \) challenge \(\text{dis 40} \) \(\text{dis 42} \) \(\text{dis 45} \) \(\text{dis 45} \) \(\text{dis 45} \) \(\text{dis 45} \) \(\text{dis 47} \) \(\text{dis 42} \) \(\text{dis 45} \) \(\text{dis 47} \) \(\text{dis 42} \) \(\text{dis 27} \) \(\text{dis 47} \) \(\text{dis 47} \) \(\text{dis 40} \
Occasion & Keilogg *, 1700 & Brane, old line dis *002.54 to tch's (List of No. 240, \$1)	Fitch * (Brissol) 14'00, dis 42% 64'5 54'5 Hotchkiss' dis 10 5 Andrews' dis 25 5 Sargent's dis 604:10 5 New York Wire
Cutlery. m. Pocket—Humason & Beckley Mfg. Codis 25 % m. Miller Bro.'s Cutlery Codis 25 % m. Miller Cutlery Codis 25 %	Hatchets, Isabih Blood
Dippers Dipp	Hunt's
Dog Collars* die 20 % mbossed Gilt die 30 % auther die 30 % gass die 25 %	Hurd's
nbossed clift	Newark's Edge Tool Co. 8
em (Coil)— No. 1, Large, Japannedper doz \$3:50 } No. 2, Medium, "per doz 2:50 } No. 3, Small, "per doz 2:00 }	125. 40.08 500 100 7.50
Description	Broad, 123. 40z 9 00 10 00 12 00 456. 40c 14 00 16 00 18 00 7 8 40z 20 00 22 00 D. R. Barton Tool Co. die 20 5
Nickeled	D. R. Barton Tool Co. 4 doz 20 00 22 00 Sinigling, Nos. 1 2 3. 4 doz 20 10 50 10 50 Lath. 1 2 3. 4 doz 10 50 10 50 00 9 50 Half Hatchets, Nos. 1 2 8 4 doz 11 00 10 50 10 00 J. F. Verree & Co. 4 doz 5 10 50 10 00 40 50 10 60 10 50 10 60 50 10 60 1
nmacelphia	National Color Nati
Ouglass, Extra	Claw, 123, 9 doz 7 75 8 60 8 75 Lathing, 123, 9 doz 120 11 00 18 00 M. H. Jones & Co. dis 25 5
acker's ouccasied dis 15 s Drawving Enives. rossuman's No. 1	Lathing. 1 33.
acksmiths each \$2 50 dis 10 % Self-Feeding each \$7 50 dis 10 % resst. P. S. & W dis 45 5 resst. Alken's dis 45 5	Emrire Hatchets, M. H. Jones & Co
" Hotchkiss dis 10 g Wilson's dis 10 g Wilson's dis 10 g Miller's Falls sach \$7'00, us 25 g alches, Merrill's dis 20 g	Half Hatchets. Nos. 123 v doz 475 5 (0) 5 25 All pol. Sh'ghing "123 v doz 525 5 50 5 75 Soild Steel Lath "123 v doz 725 730 775 Hay Knives "Lightonia" per doz \$2400 net
Ingersoll's (old list)	Hay Knives.—" Lightning " per dog \$4000 net Wadsworth's dis \$3)45 Hinges. Gate, Western W dog \$6:25—dis 600210 s

Janu	ai y	47	, ,	U	
Rolled Raised Wrought Stra	b and T	110 20 30 3	Pric e nor	& 10 % mina	B
Berew Hook a	p and T ate \(\)	.9%c # m 5, 10, 12 in . 1 14 to 36 in . 9	1 c dis 40a	&10 %	PRJ
Heavy Welded Screw Hook a	Hook } 10	in & up, 9	%c 40 ., 8%c 40 ., 8%c	s net	For
Hees. Solid Shank, C		(⅓ in. ₩ do	2 \$8 00—db 2 9 00—db	35 % 35 %	BBDD
Riveted Eye Grub Planters			z 5 00—dii	30 % 25 % 25 %	SOP
Lane's C. S.	Cresent, Ameri Scovil ters' Pattern.	can Pattern Pattern	di	16 % 10 % 15 %	P
Bird Cage		dis (30&10 @ 70d	£10 %	P
Beit Bench—Hotch Westo	kiss' \$5 00 @ don's No. 1, \$80	oz 0; No. 2, \$	7°00 per do	2 net	P
Clothes Line.	er's Hart's list Sargent's list	per do	z \$6.25, dis s 6.&10&56 .dis 60&106	20 % 10 % 10 %	田田山
Ceiling. Sar Harness. Res	kiss' \$5.00 \(\tilde{\pi} \) do n's No. 1, \$8.00 l's. er's. Hart's list. Sargent's list. Reading list. 't's list. gent's list. Hart's list. Hart's list. Keading. let. Hart's list. Reading. lets and Hooks a Stanley's list. Ooks and Eves.		.dis 60&106 .dis 60&56 dis 408	210 % 210 % 210 %	DOM ON
Wrought Stap	Hart's list Sargent's list Reading	na Stapics	dis 604:104	10 % 10 % 10 %	Cas
Wire Screw Ho	Stanley's lis ooks and Eyes	t	. dia 65& 106	40 % 810 % 25 % 45 %	SIDP
Horse Nat	atent. es—Malleable li Brass lm. Nos. 5 Pol'd. 31 Blues. 4 31 31 d. 31	6 7	dis 60&104	10 % 10 %	Ji
P't'd &	Pol'd ** 316 Blues ** 816 ** 296	c 28c 86c c 28c 26c c 26c 24c c 28c 26c	25c 24c 25c 24c 23c 22c	25c 25c 21c 25c	B
Globe, P't'd &	Pol'd ' 310	c 28c 26c	25c 24c 25c 24c 22c 21c	286	D
Polished, Pa National, Poli Polished. Ex Perkin's P't'd- Perkins' Poin	nteq and Fin " 30 Biack. " 26c	c 28c 21c	24c 28a 20c 19c	27c 18c	U
Donbaned Code	and and	24c 27c 24c 27c 28c 26c	21c 20c 21c 20c 25c 24c	19c 19c	B
Vulcan, P't'd e Star Brand, 160 r'utnam					81
Ausable. National Verkins', Vulc	onal and New L	ondon10	1000 lbs., dis 500 lbs., dis	136 % 18 5 %	B
R. I. Horse S Med. and He	hoe Co., Perki	ns' improve	d Light,	-65 14 1-65 14	М
Perkins' Snow The Boston H Boston Rolling	orse Shoe	ade	P keg, 5	\$5.00 \$5.00	E
American ice National Novelty Ice B	Chiselreakers	per de	er doz \$6.50 er doz \$6.50	0 net 10 %	HCT
White's Sliding Duniap's Ring Wood Head Pi Iron "	hoe Co., Perkia avy orse Shoe Mills Hand M (Thiseds, &c. Chisel reakers g Head Picks. Picks cks, Sargent's. cks in Handle. li, Cast or Mali	per doz 8	oz \$3°00, dis 1°85, dis 608 1°85, dis 608	10 %	Si
ice Mallets, Pi	ck in Head ck in Handle li, Cast or Mail	eablep	er doz \$1.70 er doz \$1.50	o net o net o net	0
Enameled	*** * **********	***********	die 40 ca	But of	D
" Show " Bread Hay and Straw	Knives Wadsworth	₩ do	z \$1.50—dis	15 % 15 % 13% %	B
Knobs. Carriage (Jap' Base—Common	d 80 cents per g	ross)	dis 604	110 % 110 %	NA M
" Plush T' " Elastic Door, Mineral.	End, No. 8	# doz \$1'75)	die 60	10 % M25 %	
" Plat " Por Furniture, Pla	in.	doz 6.25 doz 6.25 75c gro	& 2 % for	cash	Si
Table and Poc K nobe. Carriage (Jap' Base—Commo " Plush T " Elastic Door, Mineral. " Por Jap " ' Plai " Por Furniture, Pla Leatles, Wo Leatles, Harv' " Sarge Read " Monn Labterns. Tuoular.	nt's		dis 554	10 %	CSI
Lapterns. Tubular	oe's Patent No. 0, \$11'00 With Gua No. 5	; No. 1, \$14	00 \$4 w dis	10 %	2000
Peerless. Brady's Paten Etna.	With Gua No. 5 amail lacs ach x. Coaeezers d	, per doz \$11	76—dis 104	10 % 10 % 10 %	Food
De Beque Police Lard Pre	hes. amail	1, \$7.50 : larg	re, \$9.00, di	10%	M B
Lemon Sq. Porcelain Line	r. Co neezers.	per do	z \$7 00, dis	20 %	M
					HOP
					81
Cabinet—Gayle Eagle Trunk	Gal'd. 'Latches. ord { Crane's, List Ja		dia 25&5	&2 % 25 4	R OFEN
Round Key Flat Key Barnes & Deits	, Flat Key	H. I, '66.	dis 383/44	10 % 10 %	TZ ZZ
Sargent & Gre Continental Shepardson's,	enicaf, Flat Ke Flat Key	y	dis	20 % 25 % 35 %	MP
American Loci Plate Trenton Branford	Mfg. Co	Dow	dis 3	836 % &2 %	DES
Norwich. Russell & Erw Norwalk. Nashus.	Crane's, List Ja , Flat Key Flat Key Colleaf, Flat Ke Flat Key K Mrg. Co.	List	of Jan. 1, and 2 % for	1877. 35 % cash	200
Mallory, Whee P. & F. Corbin Parker & Whit Jacobha & Nin	pple nlek Mfg. Co				H
Padlocks, Rus " Mal " Wm	lory, Wheeler d . Wilcox & Co.	Co}	dis 33% and 2 % for	&5 % cash	Ŀ
Ron Vule	er's can Hardware (York Lock Co		dis	20 %	**
" Mill " Pen	er's Patent u Lock Works.	Soundinavi	dis	80 % 40 9 25 9	L
Mailets.— Meat Cutt Dixon's (P. S.	ier & Co. pple. pple.	2 8 2 817 00 819 0	0.850 00.41	20 %	B
Mtles Challeng Perry's Nos.	eNos 1 # doz. \$2200 1 2 3	\$80'90 4 4 g'rd	\$40 00—dia 5 g'rd	90 %	CLINH
Woodruff's (P.	Hickory and Ligers & W.). Nos. 1 # doz. \$2400 10. 400. \$2500 10. 400. \$2500 10. 500. \$2700 10. \$750. \$1000 10. \$750. \$1000	.Nos. 100 doz. \$15.00 18	150 818-00—11s 13	25 g	H
Draw Cut No Each American	5 2 \$60 00 \$75.00 \$86	0 00 \$225 00 \$	10 100-00-dJs	20 % 25 %	H
Fach \$5-00 Molasses (Stebbins' Patte	\$7.50 \$10.00 Gates.	\$12-00 \$25-0	dis 62 % 4	10 %	B
Lincoln's	dates.		dis '504	k10 %	HCI
Mertare a fron. Mortising Mac	nd Pesties- hines	each	\$20.00, dia	.net	84
Taft's Nails Nûts and Y	Vashers. 1., New List Ma	per	e Trade Re	net	BOF
					FISH
Miller's Zinc,	Brass and Copp rew, Zinc. Bras	er	Q18	40 %	D
Olmsted's Broughton's Malleable Prior's Patent	or "Paragon"	per d	dis 25d	35 % 10 % 10 %	F
Ox Balls. Pencils Faber's Carper	or "Paragon". ters'. Gilt. G. (Wire).		dis 604	net	REAR
Dixon's Lead.	er. (Wire),		gross 94%	net net	BLICE

	Porceiain Head.
	Pinking Irons per doz \$2 75—dis \$5&10 g
	Second Quality
	Fine and Fine Irens, First Quality, Second Quality, dis 50 s Salley's Patent Adjustable. dis 2540 s Salley's Victor'' dis 25410 s Defiance Adjustable, new list. dis 25 g D. R. Barton Tool Co. dis 20 s Sandusky dis 25
	Ohio Tool Co
1	Bailey's Patent
	D. R. Barton Tool Co
	Middletown Tool Co
	Sandusky Tool Co
	Button's Patent
	Pilers and Nippers. Button's Patent. Button's Patent. Button's Patent Nippers. No.1. \$15; No. 2, \$21 \$4 doz dis 25 g Leach's Patent Wire Cutters. Der doz \$6 50—dis 15 g Gas Pilers. dis 25 g Eureka Pilers and Nippers.
	Plumbs and Levels. dis 60&10 Stanley R. & L. Co.'s Pat. Adjustable. dis 60&10 Non-Adjustable. dis 60&10 Non-Adjustable. dis 60&10 Chapin's
	Chapin's
	Johnson's Patent Adjustable dis 60&10 g Davis' Patent dis 60&10 g Pocket Levels dis 60&10 g
	Pulleys. Judd's Axieper doz \$0.75 dis 40 g
2	Hotel and Tackle
	Pulteys. per doz \$0.75 dis 40 g Judd's Axie. dis 60£10 g riot House and Tackie. dis 60£10 g Jap'd Screw. dis 60£10 g Brass Screw. dis 60£10 g Jap'd Side. dis 60£10 g Clothes Line. dis 60£10 g Hav Fork. per doz \$4 50 @ 5 00, dis 10 g
-	Douglas Cistern, etc
	Union Mg. Co's. Clatern and Pitcher
	Funches. per doz \$2.00; \$2.25; \$2.50 dis 30 q Spring. per doz \$6.01 dis 25&11 Q
	Hav Fork. per doz \$4 50 @ 5 00. dis 10 % Parmys. Douglas Cistern, etc. new list dis S. & F Union Mfg. Co's. Cistern and Pitcher dis S. & F Union Mfg. Co's. Cistern and Pitcher dis S. & S. & Garden Engines dis 25 % Garden Engines dis 25 % Garden Engines dis 20 % Punches. Bett or Drive. per doz \$2 00; \$2 25; \$2 55 dis 30 % Spring. per doz \$4 00 dis 26 % dis 20 % Ramis dis 26 % dis 20 % Ramis d
	Raits
1	# for N. E. Hangers
	\$8.00 9.00 10.00 11.00 10 12 14 teets. Malleable
	Malleable
1	\$5.00 5.50 6.00 6.50 11 18 15 teeth. Rager Straps. Evan's
	Chapman dis 10 (a) 15 (5) Torrey's dis 10 (b) 10 (5) Saunder's net (s) 10 (5)
	Imon and Tinned
	Copper Rivets and Burrs
	Double
	Hods. Stair dis 40&10 g
	Stair
	Novelty. dis 10 % Acme (Anti-triction) dis 10 % Acme (Anti-triction) dis 40 % Kope, Manufacturers' List of Jan. 11, 1577, Manlla. , inch and larger % 15 c % inch se 5 15 cc
-	" Tar'd Rope % and 5-16 inch % 15 15%c
	Tarki Lath Yarn. # # 16 c Hay Rope. # 15 c
	Sinch was 11 1/2 C
	Raies. Boxwood, Ivory. Chapin's. dis 55&10 \$\frac{1}{2}\$ dis 45&10 \$\frac{1}{2}\$ dis 45&10 \$\frac{1}{2}\$
	Standard dis 55&10 % dis 45&10 % Stephens' dis 55&10 % dis 45&10 % dis
	## 1
	Stope
	Mrs. Potts
	** Assorted. 4 25 dls ** Star ** ream \$8 25 15 5 ** Emery ** ream \$8 50 6 11 50
	New England, same list as B. & A. Flint
	Common .
	" White Cotton. \$\ \mathbf{p}\$ 55c \ \text{net} \ " Drab Cotton. \$\mathbf{p}\$ 56c \ \text{net} \ Raw Hide
	Manh Lacks
	Norwich
	Hammond's Window Springs
1	Miles
1	Ciark's Nos. 1, \$10:00; No. 2, \$8*00 per grossdis \$35, 5 Ferguson'sdis 105, 5 Norwichdis 105, 5 Norwichdis 105, 5 Norwichdis 10.5 Now Englanddis 10.5 New Englanddis 10.5 New Englanddis 20.5 Sash WeightsSolid Eves
	Braws. Spear & Jackson's\$5 50 to £ gold
1	Spear & Jackson's \$3 50 to £ gold
1	H. W. Peace's Circulars dis 25 s
	Spear & Jackson
	Billet Webs per doz \$10, dis 40.5 % \$ Fruning dis 40 %
	Livingston's Butcher and Kitchen dis 50 %
	Nos. 101 102 108 104 106 106 Per doz \$12'00 10'00 12'10 9'00 8'00 6'10 dis 10 \$
-	Boynton's Patent dis 40 \$ Stillman's Genune b dox \$4:30 dis 5
	Common Lever
-1	Common Lever
	Common Lever
	Livingston's Butcher and Kitchen
	Common Lever
	Common Lever
1	" Tes. \$\psi \text{ acr 26:5-dus 40 s}\$ Union Platform \$\psi \text{ \$600, 87:00-dis 40 s}\$ Turnoull's \$\psi \text{ \$600, 87:00-dis 40 s}\$ Turnoull's \$\psi \text{ \$600, 87:00-dis 40 s}\$ Forwars \$\psi \text{ \$600, 87:00-dis 16 s}\$ \$\psi \$600
1	" Tes. \$\psi \text{ acr 26:5-dus 40 s}\$ Union Platform \$\psi \text{ \$600, 87:00-dis 40 s}\$ Turnoull's \$\psi \text{ \$600, 87:00-dis 40 s}\$ Turnoull's \$\psi \text{ \$600, 87:00-dis 40 s}\$ Forwars \$\psi \text{ \$600, 87:00-dis 16 s}\$ \$\psi \$600
1	" Tes. \$\psi \text{ acr 26:5-dus 40 s}\$ Union Platform \$\psi \text{ \$600, 87:00-dis 40 s}\$ Turnoull's \$\psi \text{ \$600, 87:00-dis 40 s}\$ Turnoull's \$\psi \text{ \$600, 87:00-dis 40 s}\$ Forwars \$\psi \text{ \$600, 87:00-dis 16 s}\$ \$\psi \$600
1	" Tes. \$\psi \text{ acr 26:5-dus 40 s}\$ Union Platform \$\psi \text{ \$600, 87:00-dis 40 s}\$ Turnoull's \$\psi \text{ \$600, 87:00-dis 40 s}\$ Turnoull's \$\psi \text{ \$600, 87:00-dis 40 s}\$ Forwars \$\psi \text{ \$600, 87:00-dis 16 s}\$ \$\psi \$600
1	"Tes
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1	Tes. \$\ \pi \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \
1	Tes. \$\ \pi \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \
	Tes. \$\ \pi \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \
1	" Tes

Nettlefold's Brass	Wringers Wilhest Con Wheels 84000	MISCELLANEOUS.	1
Nettlefold's Brass. dis 60 & foles: ienol- Fon dis 80, 10&10 "Wood, Beach. \$\$ dor \$50 to "Hickory dis 20, 10&10 Hickory dis 20, 10 Hand Rail, Sargaria dis 20, 10 Hand Rail, Sargaria dis 20, 10 Hand Rail, Sargaria dis 30, 10 Jack-Bell Sottom dis 40, 10 J	Wringers Wringers 54:00 101	Common Plain Brass Pail Ears	5
Hand Rail, Sargent's die 55&10	No. 3, Medium 66:00	Migh Brass Scrap, 16 cents. Low "18 cents. Gilding, 20 cents. Turning, Efficer and Chica half the price of Scrap.	
MCVIBER	Excelsior Bench Wringers	Turnings, Filings and Chips, half the price of Scrap. Terms - Net cash. Interest to be added after thirty	
Blood's German Steel, Grass.	Crown No. 2. 54·00 Climax No. 2. \$71·00 Less \$2·00 per No. 14. 59·00 doz. for eash	Figure 10 No. 20 inclusive, above % in. to 8 in \$0.40	
Cast # doz 15 00 Blood's Excelsior and Granger # doz 11 00 dis \$1.50	XXX Universal No. 2	" above 3 in. "50 Figs. 21, 23, two cents advance on List for each Number.	1
Silver Clipper	Stamped Tin Ware.	Number. Nos. 24, 25, 26, four cents advance on List for each Number.	1
Bush dis 20	Stamped Tin Ware, dis 20 % Common Stamped Ware dis 20 % Stamped Deep and Retinned Ware dis 33 % Japanned Tin Ware dis 20 % di	Above No. 26, special rates. Plata & inch	
Serthe Snaths. dis 30 Shears and Scissors. ess Steel. dis 73c10 Cost Iroo dis 40 Sermour's Straight Trimmers. dis 60c10 Scissors dis 50 Pruning. per doz \$85.50 \$0.00 listnard's Lamp Trimmers. per doz \$85.50 \$0.00 listnard's Lamp Trimmers. per doz \$85.50 \$0.00	Planished Tin Waredis 20 %	All Mandrel Drawn Tubes, 5 cents advance on List	1
Seymour's Straight Trimmers	METALS.	Prices. Fancy Tubing to No. 20	
Barnard's Lamp Trimmersper dos \$3'	BON Drive Hart 1 to 1 V cents now the Sheet Bond	Tubing Sawed or Cut 9 to 4 feet long 9 cents ad	1
Patent Roller	Hoop and Scroll, 1% to 1% cents per lb. Provided, that none of the above from shall pay a less rate of duty	ruoing sawed or Cut 2 to 4 feet long, 2 cents advance on List. Add to 2 cents % cent for each additional cutting under two feet. All Mandrel Drawn Tubes under % in., 25 cents per	
Russell's Anti-Friction dis 5022 Sudding Shutter, R. & E. List. dis 5025&2	KRON.—DUTY Bars, 1 to 1% cents per lb Sheet, Band, Boop and Scroll, 1% to 1% cents per lb Provided, that none of the above from shall none of the above from shall none of the above from the state of duty than 35 per cent. Fig. 47 per ton; Folished Sheets, 3 cents per lb Wrought Scrap, 38 per ton; Cast Scrao, 4 56 per ton. Hallroad, 70 cents per 100 lbs. Boiler and Flate. 1% cents per lb.	pound advance.	1
Sheaves Shape Sheaves Sheaves Sheaves Shape Sheaves Shape Sheaves Shape	Piste.1% cents per lb. Pig Iron—AMERICAN. FOUNDITY NO. 1	Fancy	
dia 90	1 1 10 th to 00	GERMAN BILVER TUBING.	
Gowliadus dis Su Old Colony dis Su Middeooro Shovel Co. dis Su Dunning s Shovels and Scoops. dis Su&754	# ## ## ## ## ## ## ## ## ## ## ## ## #	4 Per cent. : :55	
Dunning s Snovels and Coccops	Sgillaton	15 4	5 1
Pollshed Steel. dis 2008 10022 States. Square Frames, Hound Cornered, by case. dis 70 Less than a case. dis 65-210 Spokes.—North Carolina Handle Co. dis 20 dis 20	8ar 1ron	1 18 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	5 1
Less than a case	# Alls. W ton \$56 50 @ 37 00 Steel,	1-65 LEAD - DUTT: Pig \$1 per 100 lbs.; old Lead, 1% cent per lb.: Pipe and Sheet, 1% cents per lb.: Spanism.	1
Spokes Shaves Penance Metallic	Scrap. Wrought Scrap, from yard " 26 00 @ 27 00 Har Iron from Store.	German Refined	
Bailey a	Common Iron. \(\tau \) to 2 in. round and square	Bar. dis 10 % 8%c. Pipe dis 10 % 9c.	1
Defiance Metallic new list dis 25	Renned Iron. 4 to 2 in round and square)	Sheet dis 10 % 9%c Shot dis 10 % 10 % 10 %c Buck, 10%c.	
		N. P. U W B 81/4 @ 90	
By the case	Bands—I to 6 x 12 to 5-16	STREET Divery , Barn Innote Chants and Calle mained	
Tinied Iron Gis 15* By the case Gis 20* Basting Gis 15* Britannia Gis 56 Boardman's new list Gis 56 Rogers & Bro. A 1 Gis 46 Rogers & Barton Gis 56 Reed & Barton Gis 56	Ordinary sizes	at 7 cents perib., or under, 3½ cents; over 7 cents, and not above 11. 3 cents per 1b. over 11, 3½ cents per 1b. and 10½ ad val. Rallway Bars 1½ cents per 1b. Provided, that Metal centented cast or made from iron by the Besser.	1
Reed & Barton	Sommon in an or		1
	Nos. 10 to 20.	American Cast Steel.	1
Teas. \$1.50 P gross, not Tables. \$75 P gross, not	27	Teel	1
Stencti Combinations,—Stafford Mfg. Co.—	21 to 24 " 8½c " 8½c " 8½c " 8 5 to 26 " 9½c " 8 8 c " 8 8 c " 8 8 c " 8 6 t "	Ttre. 12% @ 15% 0	1
Tin (**, 5, & W.)— Teasts— Tables— Tables— Tin (Cowles Hdw. Co.) Stencti Cembinations—Stafford Mfg. Co. Stencti Cembinations—Stafford Mfg. Co. 100 100 100 100 100 100 100 1	Patent Plantished	Tool.	1
Hindostan Stone	Nos. 10 to 40.	Saw Plate, gang and X cut	1
Sand Stone	One piece Corrugated Sheet Iron Elbows. OHABOOAL IRON. 7 inch.	Tool. extra fine	1
Stocks and Dies.	\$\frac{5}{42.50} \frac{5}{3.50} \frac{5}{4.50} \frac{6}{5.25} \frac{7}{6.50} \text{per dos.} \text{BUSSIA IRON.}	Tool.	1
Grindstones, Family, Loring's No. 1 4 5 250 net	454 5 55 55 6 7 inch. 8500 700 950 1200 1400 per doz.	Gun or Homogeneous	1
Hieve Polism. F gross, \$6.00 dis 5 g Gem. F gross \$4.50 dis 5 g Gold Medal F gross \$6.00 dis 25 s	COPPER -Dury. Pig. Bar and ingot, 5c.; old copper, 4 cents # 5; Makufactured (including all articles of which copper is a component of chief value) 45 % ad	Engite Steel	
Rising Sun	valorem. American Ingot	** Round Machinery, Cast ** \$ 10% @ 11% c ** Swaged, Cast	I
Steel	unglish wheathing. Braziers Copper, Bolts, &c. Braziers Copper, ordinary sizes, over 16 oz., per	** Blister, 1st quality	1
Try Squares and T Bevels	Braziers Copper, ordinary sizes, Over 10 0s., per square 1001	de 2d quality	
" No. 2	17 Oz., per square foot	** ** 2d quality ** 14%c ** 3d quality ** 12%c	
Kising Sun. per gross \$5':50 net Squares. dis 50 %: full cases, dis 50&10 %: Nickel Plated. dis 50 %: full cases, dis 50&10 %: Nickel Plated. dis 50 %: full cases, dis 50&10 %: Nickel Plated. dis 50 %: full cases, dis 50&10 %: Try Squares and T Bevels. dis 45 %: Star Try Squares and Bevels. dis 50 %: Star Try Squares No. 1. dis 50 %: Winterbottom's Try and Nitre. dis 50 %: Tacks, Brs **s. &c List of January 1970. Tacks, Half Weight, American (1975) Half ** Swedge dis 55%:	Circles, 84 inch diameter and over	" Square and Kound. "12%c Mill. "18%c"	
Tacks, Half Weight, American. dis 75d: Full 918-54c Half Swedes dis 55d: Full 918-908-108-108-108-108-108-108-108-108-108-1	Segment and Pattern Sheets	" Taper to 4 inch	
Copper \$ b 45c dis	Copper Bottoms. 3Sc. W B	MODEL STOP Trues Barn and Plates	
Brads. Haif Weightdis 50ec Shoe Nails— 4-8ths and longer, 9c.; 3%-8ths, 9%c. 2 25, dis 10 % Trunk, Clout and Finishing Nails—	Sheathing Copper, tinned on one side, by the case	per 100 lbs. Silesian, cash	
25 2) 17 13 18 11c. 4 3. dia 10 4	Case. 6c. \$\psi\$ sheet For less than a case. 8c \$\pi\$ sheet Thining Sheets, ordinary sizes. 25/c. \$\pi\$ aq. fs For tinning both sides double the above amount.	TIN-DUTY: Plates, Sneets, Tagger and Terne, 1:1c. per lb.; Electro-gaivantzed Plates, 2 cents per B; Manufactures of, not enumerate:1, 35 pet cent. ad val. Bars, Block and Pigs, free. Banca. subject to duty of 10	
Double Pointed Tucks	O'NEILL'S PATENT PLANISHED COPPER. 14 and 16 oz. and heavier	Bars, Block and Figs, free. Banca. subject to duty of 10 per cent.	
Tap Berers dis 30&10	12 of. and lighter	per cent. # % 20c, currency Banca. # % 20c, currency Strafts. # % 20c, currency English # % 20c, currency	
Tea Trays.	16 and 16 oz. and heavier 39c. By the case, Sec. # 3 (And all sizes not over 30 inches wide.)	TIF PLATES, CURRENCY PRICES. 12x12 Prime Charcoal	
Tea Trays. American Tea Tray Codis 15 5 Thermometers. Tin Casedis 6025 5	14 and 16 oz. and heavier	1 X 10x14 12x12 Prime Charcoal 10·00	
American Tea Tray Co. dis 15 s. Thermometers. dis 60±5 s. The Casks. dis 60±5 s. The Caiks. Winsted P > 10c., dis 5 g. 7 s. Tebacce Cutters. Enterprise Mfr. Co. (Champion). dis 20 s. Wood Bottom. per doz \$12-dis 50±10 s. All iron. per doz \$150-dis 50±10 s. Tinners' Tools and Machines. Tinners' Tools and Machines. Traps. dis 10 s. Traps.	ANTIMONY	D C 123/x17 "	1
Enterprise Mfg. Co. (Champion) dis 20 % Wood Bottom per doz \$12-q18 20 & 10 % All Iron	Brown & Sharp's Gauge the Standard for Metal; Old English Gauge the Standard for Wire.	For each additional X add	1
Nashua Lock Co. 8 per doz \$18 00—dis 50 %	BRASS MANUFACTURERS' PRICE LIST. January 1, 1877. Cash prices for Roll and Sheet Brass. For less quan-	I C 10x14) Best, 2d quality. Ordinary.	
P. S. & W	tity than io pounds, add scents per pound.	TERNE PLATE.	
Hotekhiss	All Nos. not thinner than to No. 28, wider than 2 in., not wider than 14 in	I C 14x20 \$7:00 6:50 @ 6:75 6:25 @ 6:50 I X 14x20 9:25	
Patent Choker (Union Nut Co.)	not wider than 14 in	I C 20x23 14·50 18·50 2 14·00 18·00 2 18·50 I X 20x28 19·50 12·75 I C 20x20 21·75 I C 14x20 M F. Brand \$8·00 2 6·25	
Traps Game, Newhouse dis 25a.2 s	30 in. inclusive	ZINC DUTY Pig or Block, \$1 50 per 100 lbs. Sheet	
Patent Self Settingper doz holes 2c net Catch-em-alive	All Brass thinner than No. 38 is Platers' Brass, at50c Sheets 24x48 in., and all sheets cut to particular sizes and lengths under 30 in., it width wider than 2 in57c	234C. P b. Shoet	
Trowels	Printers' Rules. 44c Sheets wider than 30 in. and under 40 in. 45c 45c		
Peace's Plastering	and lengths under 30 in., in winth wider than 2 in 3ic Printer's Kules 44c Sheets wider than 30 in. and under 40 in 45c	Paper Stock, Old Metals, & c.	H
Garden. dis 25 g		(Depleyed College Bridge	-
Triers. Butter and Cheese	Four cents # D more than High Brass. Gilding Metal &c, # Dimore than High Brass.	** cotton, No. 1	
Vises. Solid lox, Trenton 40 to 160 lbs., 12 kc. net	In Bars	Canvas linen	
Peter Wrights 160 and over, 22c 3 dis 30 %	FOR SLITTING. Metal, in width 2 in. to 36 in. to No.28, inclusive, ic. per	Mixed woolens. 24 934 3oft woolens. 54 6 64 30nny bagging.	
Wilson's dis 31&10 \$ Sargent's dis 55&10 \$ Trenton dis 55&10 \$	Metal, in width 2 in. to 34 in. to No.28, inclusive, ie. per 8. advance. Metal, in width 2 in. to 1 in., thinner than No. 28, 2c. per	Inte Butts 34 G 24 Kentucky bagging 55 G 55	
A T C C C C C C C C C C C C C C C C C C	m. advance. Metal, in width 1 in. to 1/4 thinner than No. 28, 8c. per m. advance.	Rope cuttings. 15 6 3 Kentucky Baie rope. 4 4 45	
Hackus and Union. dis 25 < Merrill's dis 15 < Fisher & Norris dis 15 < Fisher & Norris dis 15 < Gamma dis 25 < Gamma dis 2	Metal, in width 1/4 in. to 1/4, inclusive, not thinner than No. 28, 2c. per B. advance. Metal, in width 1/4 in. to 1/4 thinner than No. 28, 5c. per B.	Mixed woolens 25 % 35 % 60 % woolens 25 % 60 % 60 % woolens 25 % 60 % 60 % woolens 25 % 60 % 60 % 60 % 60 % 60 % 60 % 60 % 6	
Saw Filers, Bonney per doz \$2000 dis 25 \$ Steam per doz \$2000 dis 25 \$	advance. Metal, ¼ in. in width and less, 10c. per lb. advance Any of the above widths cut to particular lengths, add	White Collar Cuttings, all paper.	
"Hookins" Der doz \$1.750 dis 10 \$ Wheel Barrews. Canal (Pugsley & Chapman) new list dis 30, Coal, Garden and Stone (Pugsley & Chapman) dis 30 \$ Jacob's Pat. Self-Olling B. R. and Canal dis 25 \$	7c. per pound. ORBMAN SILVEE MARKET METAL AND WINE.	Grass rope. 34 4 Tarred Shaking. 4 Tarred Shaking. 4 White Coular Cuttings, all paper. 7 Hard White Shavings, No. 1. 6 Soft. No. 1. 6 White Shavings, No. 2. 5	
Coal, Garden and Stone (Pugsley & Chapman)dis 30 % Jacob's Pat. Self-Olling B. R. and Canal	4 per cent., 13 in., to No. 26	white Shavings, No. 2. 5% 4 4% lixed Shavings, part white. 4 4 4% lixed Shavings, part white. 5 4 4% lixed Shavings and Sh	
Brase and Copper	10 84 1 15 15 1 104 1 140 1 14	Wince Shavings, part white. Mixed Shavings, part white. Imperfections, No. 2, best folded sheets. In the Havy Stock. May 2, light. Newspaper Stock.	
19 @ 26 dis 75 de 00 s	German Silver Sheets over 12 in. wide, and weighing more than 10 bs., \$2.25 per b. Advance 2c. for each additional in., in width above 12 in., and 2c. per b. on each No. thinner than Nos. 26 to 36	Newspaper Stock	
Conpered. 0 @ 18 dis 47% @ 20 c Galvanized, Nos. 0 to 5	Advance set for each studitions in , in which above 12 in, and 2c. per % on each No. thinner than Nos. 2c to 3c inclusive. All German Silver thinner than No. 3c is Platers' at E	logus Manilas and Hardwares 1 6 1%	
Tinned Nos. 0 to 15. dis 39 \(\) \(\	All German Silver thanner than No. 30 is Flaters at E. Sc. per B. additional. German Silver Scrap one-third less than net price of 12 'Vin. Market Metal. German Silver Turnings, Filings and S	Commons. 4 Sand Cuttings. 14 Sanders' Board Cuttings. 14 Sander Cuttings. 15 Sander Cu	_
Galvanized Telegraph, Nos. 8 and 9	Chips, half the price of Scrap. BRASS AND COPPER WIRE.	Old Metal.	S
Annealed Fence. Nos. 9 and 9	Wo. 0 to 20 S0-84 S0-28 S0-45 F	Frass, heavy	100
Well Wheels.—Revised list dis 60£19 \$ Wire. Brase andCopper. List of Jan. 1. 1877, dis 10 \$ Bright and Annealed Nos. 0 @ 18 dis 52 \$ @ 50 \$ \$ " 19 22 \$ dis 70 \$ @ 50 \$ dis 70 \$ @ 50 \$ \$ Coppered 7 0 @ 18 dis 22 \$ @ 50 \$ \$ Coppered 7 0 @ 18 dis 47 \$ @ 50 \$ \$ Galvanized, Nos. 7 to 18 market list dis 28 \$ 7 Tunned Nos. 0 to 15 dis 25 \$ 2 \$ \$ Tunned Ros. 0 to 15 dis 25 \$ 2 \$ \$ Tunned Broom Wire. Nos. 18 to 25 dis 25 \$ \$ Galvanized Telegraph. Nos. 10 and 11 \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$	No. 22	Pos load	
Galvanized Date Control of the Contr	NO. 24. 19 43 50 Z NO. 25. 42 46 53 F NO. 26. 44 48 56 NO. 27. 46 50 57 8	1	
Clothes Lane Wire. dis 50 \$ Clothes Lane Wire. per coll 50c. net Wrenches.	NO. 25. 42 46 53 F NO. 25. 42 46 55 F NO. 27. 46 50 57 8 NO. 27. 46 50 57 8 NO. 28. 49 52 68 V	melter	р.
Attackee Admitable dis 45 d		light fronper ton \$12.00	ď١
Baxter's Adjustable "S" New List, May 1, "6dis 20 s	No. 30	stove plateper ton \$1200	
Batter's Adjustable 'S' New List, May 1, '76. dis 20 5 Diagonal Collins & Co.'s dis 45 5 Coes' Genuine. dis 60 5 Parters (Wrought)	NO. 23	stove plate	
Collins & Co.'s	No. 32	stove plateper ton \$1200	
Batter's Adjustable '5' New List, May 1, 78, 415 205	No. 33.	Paints, Oils, etc.	n
Batter's Adjustable 'S' New List, Mav 1, '70. dis 20 s Diagonal dis 20 s Diagonal dis 20 s Collins & Co.'s dis 30 s Pattern (Wrought) dis 30 s Collins &	No. 32	Paints, Oils, etc. Paints. Slack lamp—Coach Paints. "" Ordinary 6c	D
Diamond Hardware Co	No. 32.	stove plate. per ton \$1700 Burnt Iron. per ton \$3.00	D

AGI	· ·					31
	Blue, Prussian, fair to heat	Chark				%
	Bine, Prussian, fair to best	Chafk " Block " Block " English Flocks Frostings (Glus, White " Sheet Glus, White " Sheet " Damar. Folits. Zinc " Damar. Folits. Zinc " Damar. English " Dewlers " Dowlers " Dowlers " Dowlers " Dowlers " Dowlers " In bulk Rotton Stone, soft, English Spirits Turpentine " Whiting, Spanish	888'0	cana,	10%c.; 1 11c.;	egs.
	Carmine, 40	Frostings				50
e of Scrap.	Green. Chrome	Sheet				
W D	Paris	Gum, Copal				38
n \$0.40	Mineral Paints	Bheliac, English				
for each	Red Lead, American8%c	Litnarge				914
for each	Venetian (N. C.) dry	Potter to bloddered	*****		***	4
TOT CHCM	" Indian, dry	to bulk				.284
	Sienna American, Raw	Spirits Turpentine				48
78 1.10 1.60	" in oil	Whiting, donnish	******		******	%
ce on List	Umber, Burnt	Gia	AB.			
cy Tubing 58c	Raw in oil	PRENCH WIN				
cents ad-	" in oil	Prices current pe			et.	
al cutting	English	SIZES.			8d.	i átm.
ai cutting	American, Common	6 x 8 to 10 x 15	8 7:50	\$ 6.75	\$ 6.25	5.7
cents per	White Lead, American, pure dry	11 x 14 to 16 x 24	8°50 10°75	9:75	7 25 8 75	6.7
	White, Paris, English, prime	15 x 36 to 24 x 30	10.00	10.10	9:00 9:75	
	in oilasst'd cans, lic; kegs, 8c	26 x 86 to 26 x 44	14.20	13.52	10-75	
31	Yellow Chrome	80 x 53 to 80 x 54	16:00	14:00	11:25	
	Zinc White, American No. 1 dry	26 x 26 to 26 x 30 26 x 36 to 26 x 44 26 x 46 to 30 x 50 30 x 53 to 30 x 54 30 x 56 to 34 x 6 36 x 60 to 40 x 6	18.25	15:50	15:00	
	French (Paris)lic	% x 60 to 40 x 60 Double	20-75	18:75	17725	
1.40	In oll12e	SIZES.	1st.	2d.	Sd.	18 h
1:45	Linseed Raw # gal. casks, 66c. bbl., 67c	6 x 8 to 10 x 15	\$12.00	811:00	\$10.00	# 9·25
1.55	Whale, Crude	11 x 14 to 16 x 24 18 x 22 to 20 x S0	13.75	12:50	11.75	10.59
Lead, 1% cent	Sperm, Crude	15 x 35 to 24 x 40	21:00	17:25	14:50	
6% @ 6%e gold	Bleached 1'60	6 x 8 to 10 x 15. 11 x 14 to 16 x 24. 18 x 22 to 30 x 50. 15 x 35 to 24 x 4. 26 x 28 to 24 x 4. 26 x 28 to 24 x 36. 26 x 26 to 30 x 50. 30 x 55 to 34 x 56. 30 x 56 to 34 x 56.	28-25	21 25	17:25	
6% c gold 6% @ 7c gold 6% c currency	Lard, Pure Winter 1-06	90 x 52 to 30 x 54	25.75	23-25	19-25	
8¥c.	" Spring " 1-00 Cotton Seed, Crude. " 62c	84 x 58 to 51 x 80	29-25	27:75	54.00	
16%.	Southern Yellow " Cic	Sizes above 40 x 60-\$10.00 p	er hox	extra f	OF UVEL	v five
Buck, 10%c.	Neatafoot, Winter	inches.				
. W B 85 @ 9c	Mundring.	An additional 10 per cent. w more than 40 inches wide.	li size	a abov	e 52 Inc	hes in
. W ID 075 (SE 70	Asphaltum Sundries9c	be charged in the 84 united in	ches o	racket.	u inche	s, with
d Coils, valued er? cents, and	Benzine @ gal. 16c	Discount 50&15 \$.		_		
cents per lb.	DDAMM	7 -0- 0	-			
Provided, that	PRATI	- & C		-9		
er? cents, and cer? cents, and cents perlb. perlb. Rall- Provided, that by the Besser r form or de	Hardware & Iron Mer	chante But	Fal	0 '	RT	V
			131	υ, .	ra.	× .
15 @ 16c	MANUFACT	- Atlantic - A				
10c	THE FLETCHER P	OST HOLE	A	TI	TE	R
10c 12½c 12½ @ 18½c	THE PRESCRIENCE	OSI HOLL	1	U	A LU	LU.
	The best, the cheapest, the most du	arable, and the bandlest E	arth A	Auger	in ma	rket.
11 c 14 @ 16c 14 @ 16 ½ c 18 @ 14c 18 @ 90c	Made from the best cast steel; will be	ore three holes while any	other	auger	is be	oring
18 @ 90c	one, and is run with less power; wor and will cut sharply through grass or	root sods without the use	of al	ovel	OF SDS	de to
390 @ 011111	start it.					
W 5 20 @ 21c	The ordinary flat bottom post auger	s in use are easily brok	en, be	ent an	d disa	bled,

while the blades split and crack with strong pressure. The "Fletcher" Auger will stand any force applied to it, while its peculiar construction enables it to cut by the point and over lapping blades, in such a manner as to push itself speedily and



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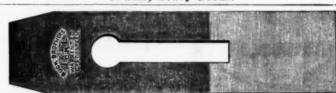
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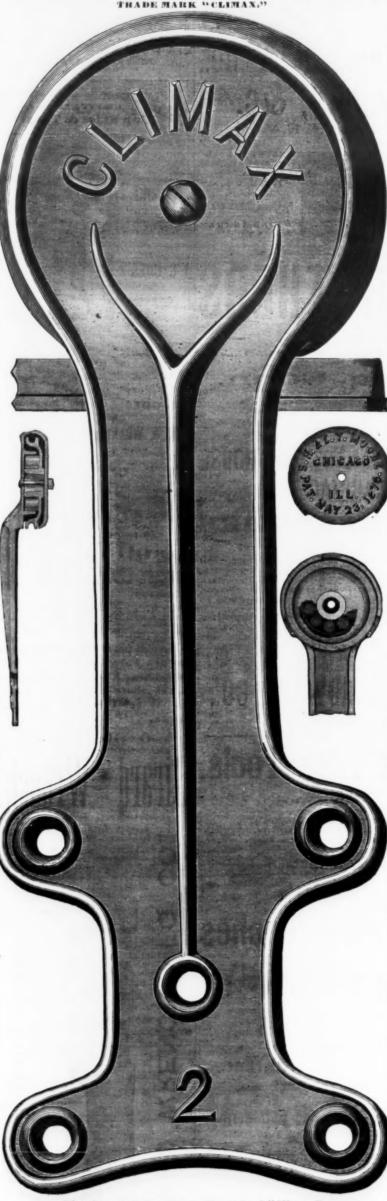
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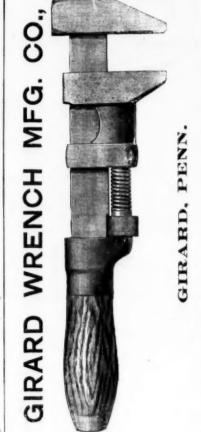
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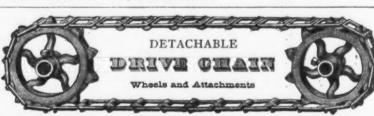
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ı	Bells, Cow—Yawa Genutae dis 40 9
١	Braces—Bit, Spofford's Patentdis 25 1
I	Brass-Sheets dis 50& to a
l	Bolts-Stove. Brooks' Pat.dis 35 % 4 mos.: 8" At \$ 30 dys
l	Brick-Bath (box of 2 doz) Beet Engiteh
I	Cases—Parior Coal Hod
I	Framing Socket
l	Corner Socket Chieels. dis 70 s
I	Castings—Malleable
I	Cocks—Globe and Bibbdis 40 g
I	Egg Beaters—" Dover"
I	Adjustable
ı	Columbusdis 20 s
l	Fluters—Geneva Hand
ı	Freezers, Ice Cream—" Champion' doz. \$15.00
١	Hinges, Gate—Shepard'sdis 10&5 %
	Hinges-Window Blind-
	Hods, Coai-Plain, Black and Galvan'd new list die 15
	Fancy and Helmer dis 15 %
	Sad Irons dis 15 %
	Copper, "Hand Made"
	Enameled
	Razor Blade
	Lanterns, Tubular-with guard\$11 50 }
	Machines—Apple Paring
1	Machines—Boring, Snell'sdis 25 %
	Box Union and Eagledis 25 %
1	Horse, AusableNo. 5
	90 27 25 24 25 22c
	" 1000 lbeadd ic * h
i	Pans—Dripping
	Frying
2	screws—"American screw Co"—
i	Flat Head, Irondis 52% \$
8	sieves-Wood, Hoop irondis 52 % \$
8	Tinned
ě	kutes and Straps—White's
D	by the case
	S. S. & Co., Kitchen
	Britanniadis 40 %
9	G. S. Hall, Elton & Codis 55 \$
	Fairbanksdis 25 %
5	tove Polish—Gem
	Hods. Coal—Plain, Black and Galvan'ednew list dis 15 % Faunel, Black and Galvanized
ŕ	acks—Half Weight Am. Iron. # doz., \$5.40
۰	no Trove

Vises—	1.
Parailel. Buffaio	13
	1
	п
Cast Iron Hollowdis 45 \$	п
Wire Brees and Conner	1
Wire—Brass and Copper	1
wire—Bessinger Steeldis 13 €	ı
Wire—Bessmer Steel	
Tin Pintes.—Add for each X 250	ь
10x14, 10. Charcoai \$8.25 14x20 C. terne \$7.50	ı,
12x12. " 8-25 30x28 C. " 87 50	١.
12 W 17. " 7.75 20 v 98 V /*	Ι.
10x14, 10. Charcoai.	П
The Stan Straits	П
Pig Tin-Straits 200 @ 214c	н
Bar Tin	н
	н
NO. 1 Star	н
Sheet Zine-	н
"Lanalle "	н
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Sheet Zinc	
Babblit Metal. # 12c Iron Wire—Bright and Annealed. Uls 50 %	
№ 12с	
iron Wire-Bright and Anneated dis 50 s	
Coppereddis 30 %	A
Tinneddia 21g	£
Tinned Broom (Nos. 20 21 22)	
Tinned	-
Copper—Sheathing 14 @ 18 oz B 31c	
Planished F b 37e @ 30e	
Bottoms B Sic 6 30c	
Dolto	
Bolta	

a Trays.

	1de 10e
Gen. Russia, No. 1 stained	191
Galvanized	dia 3314
DETRO	DIT.
(Reported by Messes, J	
Sept. 25, 1	
Tin Plate - Best Grades.	010.
Tin Place - Best Grades. 1C, 10x14, 12x12, 14x20	
IX, 10x14, 12x12, 14x20	
IXXX. 14x20	1849
IXXXX 14x20	9 terns
DC, 1234x17	7.7
DC, 12½x17. DX, 12½x17 DXX, 12½x17. DXXX, 12½x17.	19.7
DXXX, 1254x17	
DAAA, 1256XI4	
IC, Terne, 14x20	
IC, " 30x28	16:20
TX 20x28	21.20
Pig Tin-Straits. Large Pigs.	20/
Bar Tin	
No. 1	140
No. 2	
Copper Sheathing, 14, 16 and 18 oz	
Planished, 14x48	31C
Boller Bizes	
Sheet Iron.	
No. 18, Am. Common	88:50
No 94 Am Common	

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Iron, standard list assorted sizes, for large orders, specifications to include Bands, small Rounds and Ovals, 25c, rate, 25 off net.

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Plew Single Tree, Ironed complete. Irons all

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Coupling Twe net Tongue # 4%c net Tongue & 4%c net Tongue Cap Iron, 1%, 2 & 2% in. wide, same price w h as Wagon Chains. Stay, Lock and Tongue, 5-16 in. W # 9c net; ½ in. 10c net.

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5c w set for each additional inch over 14 in. All lengths made.
In ordering Box Strap Bolts please give diameter at Screw End.
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Wagon Box Rods, narrow track, each. lice wide track, each. lice

Wagon Brake Matchets, each guished with guard, each make the same strape, heavy pattern, each light each.

Stay Chain Hooks, each bomble and Single Tree Clips, figure 1, each geach as each as each stay Chain Hooks, each guise 1, each as each guise tree Clips figure 1, each as e

California Tire Rivets and Burrs, 5-16. 10c net
Wagon Box Staples, 1½ to 2½ in. to clinch, w 1000 st 25 net
Bevel Box Iron. to rivet on, w 1000 st 25 net
Necs Yoke Eyes, each. 1 with 5 rings, each. 2 c net
Wagon Bivets, c., 1 with 5 rings, each. 2 c net
Wagon Bivets, c., 1 with 5 rings, each. 2 c net
Wagon Rivets, and 1½ in. dam # 3 3½ net
Wagon Rivets, 5-10 rings, and 1½ in. dam # 3 3½ net
Wagon Rivets, 5-10 rings, 10 rings, 2 c net
Wagon Rivets, 5-10 rings, 10 rings, 2 c net
Wagon and Hinge Nalls, pointed by hand—
½ c xtra
½ x 3 and longer 2 ½ ½ 2½ 1½ 1½ and shorter,
11c \$ m. 15 c \$ m. 15 c \$ m. 15 c \$ m.
3-16x3 and longer 2 ½ c 2½ 2½ 1½ and shorter,
11c \$ m. 15 c \$ m. 15 c \$ m.
4 sand shorter,
15 c \$ m. 15 c \$ m.
4 c m.
16 c m.
17 c m.
17 c m.
17 c m.
18 c m.

l subject to change of market, without BELTING.

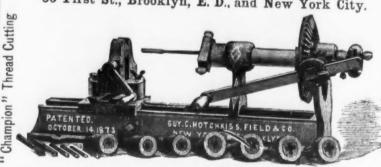
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HAMMERED AND FINISHED HORSE NAILS.

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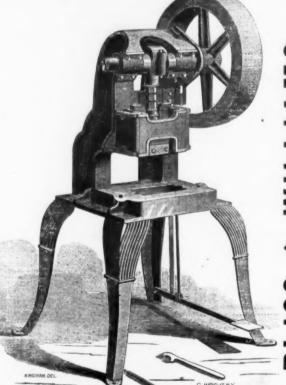
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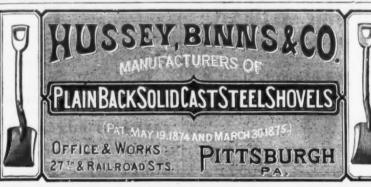
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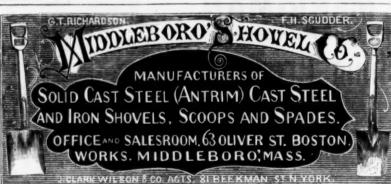
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Claw 1, 575; 2, 625

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Broad 0, \$575; 1, \$650; 2, \$750; 3, \$725; 4, \$1075

Hinges - Strap and T Stanlev Works unsettled Pinte. Loose and Fast Joint 4 to 5 to 5 through 5 thro ...dia 883485 % ...5 to 6 6 to 7 \$9 00 \$9 50 Picks.—h. P. & Co., Solid Eyes.....

| Plamb & Levels. - Stantey. | Plamb & Levels. - Stantey. | Plamb & Levels. - Stantey. | Alis 85 s | Pulleys. - Axio. | Axio.

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Aiken's Genuine, \$12. | Spading Forks. - W. C. & Co. | dis 35 5 |
Sieds. - Miller's	dis 33 5 7
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Aiken's Genuine. \$12	dox 85 40
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Bake's	dis 40 5
Bake's	dis 40 5
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Backus	dis 40 5
Howards. 'Parallel	dis 10 5
Backus	dis 25 6
Wardrobe Hooks. - Wire to drive	dis 27 cos \$1 00
Weather Strips. - "Harmon's"	per dos \$5 dis 10 5
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ST. LOUIS.

Garden Seed Drills and Wasel Hose
Alien's Double Wheel Mose. dis 15 g

" Planet Drills, Nos. 2 and 5. dis 15 g

" Planet Drills, Nos. 2 and 5. dis 15 g

Grindle Gombined Drill and Wheel Mose. dis 15 g

Grindle Gombined Drill and Wheel Mose. dis 15 g

Grindle Gombined Drill and Wheel Mose. dis 15 g

Grindle Gombined Drill and Wheel Mose. dis 15 g

Sedechese's Nonjarchi Mills. dis 15 g

Sedechese's Nonjarchi Mills. dis 16 g

Sedechese's Nonjarchi Mills. dis 18 g

Hammers, — Mason's Hammers. e. 2 h 19c

Smiths' Hand. dis 2 g

Handle Sedechese's Nonjarchi Mills. dis 2 g

Handle Sedechese's Nonjarchi Mills. dis 2 g

Handle With Hand. dis 2 g

Harrew Treath. linch from 2 g

Barbed or Headed. Sc ext. a

Hay and Ustrean Presso. dis 18 g

Dederice Sedechese's Perpetual dis 10 g

Lighting (Weymouth's Patent). g

Hay Knives.— National Patent Fointed. document of the processing of the processi

| Coss. | Coss

St. Louis Metal Market.

(Corrected Weekly by Messre. R. Selless & Co.)

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It is a common method to advertise Governors without cost, unless satisfactory to the customer, and then charge High Prices for doing what any good Governor will do. Varions Governors inferior to the "Judson" are sold in this way, operating well enough for three months, to insure collection of the pay, but becoming useless after a year's warr—their construction lacking durability. The Judson Governor is guaranteed to be not only the best Regulator of Steam Engines, but also the most durable Governor made. Partles in buying other Governors should stipulate that their durability be guaranteed, and should also take care that they do not, for much inferior Governors, pay higher prices than those shown in the accompanying list. We guarantee the Judson Governor will do all any other Governor can do, and in Accuracy and Durability—the main esentials—we guarantee it shall do more.

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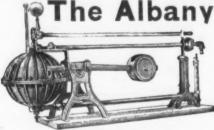
For dimensions of Governor, see Illustrated Price List.



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	16	\$16 00	\$18.00	£1:90	
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A	136	23:00	26:00	2.25	6:00
	18	26:00	80.00	2.50	8:00
	9	31:00	85.00	9.75	10:40
	236	36.00	41:00	8 25	12:00
AND WAY	236	40 00	45.00	8.80	14:00
	934	45 00	51.00	8.75	16:00
JOHN GERMAN	34	80.00	57:00	4.95	19 00
	836	59:00	67:00	4:50	23:00
2005 15 Sept.	4	69.00	78:00	5.00	28:00
第 11 	436	80.00	90.00	5.50	84:00
M are Will beautiful	5	90.00	101:00	6.00	40.00
	536	105.00	117:00	6.50	46:00
	6	190.00	133.00	7 00	54:00
The second secon	2	142:00	156:00	8:00	65.00
THE JUDSON PATENT	8	175.00	192.00	9:00	79.00
mnrayed Steam Covernor	9	198.00	218.00	10.00	
mproved Steam Governor.	10	210 00	940.00	12.00	

No Charge for Boxing & Cartage. JUNIUS JUDSON & SON, Rochester, N. Y.





This Trap automatically drains the water of condensation from Heating Coils, and re-turns the same to the Boiler whether the Colls are above or below the water level in Boiler, thus doing away with pumps and other mechanical devices for such purposes. Apply to

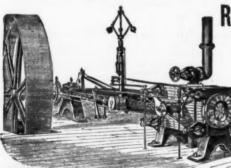
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The Pratt & Whitney Co.,

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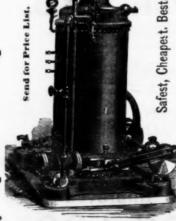
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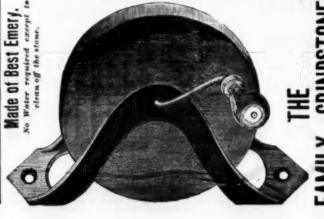
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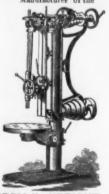
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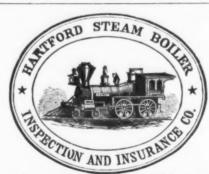
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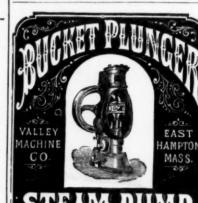
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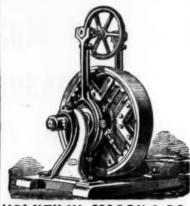
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